



STIC Search Report

EIC 1700

STIC Database Tracking Number: 172465

TO: Sandra Poulos
Location: REM 10D18
Art Unit : 1714
November 29, 2005

Case Serial Number: 10617165

From: Usha Shrestha
Location: EIC 1700
REMSSEN 4B28
Phone: 571/272-3519
usha.shrestha@uspto.gov

Search Notes

Examiner Poulos,

Claim 1 of this application as you have requested is very broad to search with the terms thermoplastic resin or thermosetting resin. However I have used carbon black or silica to do the search. If you have any questions please let me know. Thanks.





STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher* or contact:

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- I am an examiner in Workgroup: Example: 1713
➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

- Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

Mellerson, Kendra

172465

From: "Sandra Poulos" [sandra.poulos@uspto.gov]
Sent: Monday, November 28, 2005 8:01 AM
To: STIC-EIC1700
Subject: Database Search Request

Requester:
Sandra Poulos (TC1700)

Art Unit:
1714

Employee Number:
81697

Office Location:
REM 10D18

Phone Number:
571-272-6428

Mailbox Number:

SCIENTIFIC REFERENCE BR
Sci & Tech Inf. Cntr.

NOV 28 2005

Pat. & T.M. Office

Case serial number:
10617165

Class / Subclass(es):
524/261

Earliest Priority Filing Date:
7/09/2002

Format preferred for results:
Paper

Search Topic Information:

Special Instructions and Other Comments:
Please search claims 1, 4, 5, 12, 13, 20, 28

L37 2 S E3-E5
L38 1 S 112945-52-5/RN
L39 2 S L38 OR L29 ✓
L40 3 S L12 AND L21

FILE 'HCAPLUS' ENTERED AT 11:25:57 ON 29 NOV 2005

L41 17 S L24
L42 204 S L28
L43 221 S L41 OR L42 ✓
L44 337426 S L39 ✓

FILE 'REGISTRY' ENTERED AT 11:29:18 ON 29 NOV 2005

L45 1 S 220727-26-4/RN
L46 1 S 56275-01-5/RN
L47 3 S LL45 OR L46 OR L33 }

FILE 'HCAPLUS' ENTERED AT 11:34:24 ON 29 NOV 2005

FILE 'REGISTRY' ENTERED AT 11:34:28 ON 29 NOV 2005

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L49 300000 S L48 RAN=(171080-91-4,)
L50 313052 S L48 NOT L49
L51 300000 S L49 OR L49
L52 150000 S L51 RAN=(334992-13-1,)
L53 150000 S L51 NOT L52
L54 313052 S L50 OR L50
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L56 163052 S L54 NOT L55
E SILICA RUBBER/CN
L57 1 S E2

FILE 'HCAPLUS' ENTERED AT 11:58:30 ON 29 NOV 2005

L58 30151 S L52
L59 43715 S L53
L60 55923 S L55
L61 219384 S L56
L62 273811 S L58-L61
L63 337426 S L29
L64 5563 S SILICA(3A) (RUBBER? OR ELASTOMER?)
L65 1295 S L64 AND L62 AND (L63 OR L43 OR L44)
L66 30 S L65 AND HARD?(3A) (RUBBER? OR ELASTOMER?)
L67 1 S L66 AND L11

L62 or L44

=> d his

(FILE 'HOME' ENTERED AT 09:07:48 ON 29 NOV 2005)

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STR

L2

FILE 'REGISTRY' ENTERED AT 09:30:14 ON 29 NOV 2005

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L4 SCR 2043

L5 50 S L2 AND L4

FILE 'LREGISTRY' ENTERED AT 09:35:21 ON 29 NOV 2005

L6 STR L2

FILE 'REGISTRY' ENTERED AT 09:40:27 ON 29 NOV 2005

L7 50 S L6 AND L4

L8 STR L6

L9 50 S L8 AND L4

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L11 1 S L10 AND HARDNESS/TI
SEL RN

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L14 SCR 2026

L15 50 S L13 AND L14

L16 SCR 1918

L17 50 S L13 AND L14 NOT L16

L18 STR L13

L19 STR L18

L20 50 S L19 AND L14 NOT L16

L21 613052 S L19 AND L14 NOT L16 FUL

L22 1 S CARBON BLACK/CN

L23 0 S 1333-86-4/CRN

L24 1 S 1333-86-4/RN

L25 1 S 138184-94-8/RN

L26 1 S 146701-60-2/RN

L27 1 S 158766-37-1/RN

L28 3 S L25-L27

L29 1 S 7631-86-9/RN

L30 6 S L12 AND 1-3/SI

L31 1 S 56275-01-5/RN

L32 377 S 1066-40-6/CRN

L33 1 S 14814-09-6/RN

L34 1 S 14807-96-6/RN

L35 1147 S 7699-41-4/CRN

L36 1 S 13983-17-0/RN

E THIXOTROPIC FUMED SILICA/CN

E FUMED SILICA/CN

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=> d his

FILE 'REGISTRY' ENTERED AT 09:07:57 ON 29 NOV 2005

E MERCAPTOPROPYLTRIMETHOXYSILANE/CN

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L18 STR L13

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L22 1 S CARBON BLACK/CN

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L27 1 S 158766-37-1/RN

L28 3 S L25-L27

L29 1 S 7631-86-9/RN

L30 6 S L12 AND 1-3/SI

L31 1 S 56275-01-5/RN

L32 377 S 1066-40-6/CRN

L33 1 S 14814-09-6/RN

L34 1 S 14807-96-6/RN

L35 1147 S 7699-41-4/CRN

L36 1 S 13983-17-0/RN

E THIXOTROPIC FUMED SILICA/CN

E FUMED SILICA/CN

L37 2 S E3-E5

L38 1 S 112945-52-5/RN
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 L46 1 S 56275-01-5/RN
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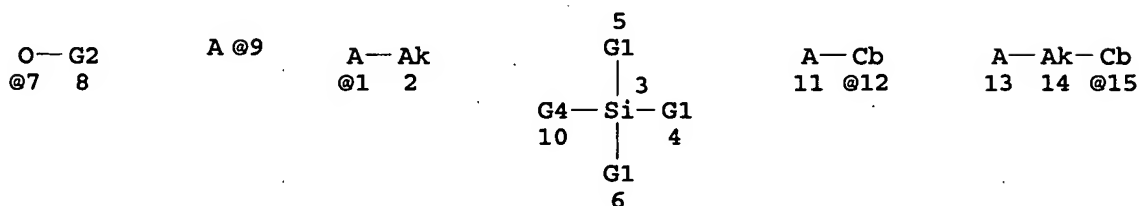
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 L67 1 S L66 AND L11

=> d que 166

L14 SCR 2026
 L16 SCR 1918
 L19 STR



VAR G1=H/AK/CB/7
 VAR G2=AK/CB
 VAR G4=1/9/12/15

NODE ATTRIBUTES:

NSPEC IS RC AT 1
 NSPEC IS RC AT 9
 NSPEC IS RC AT 11
 NSPEC IS RC AT 13
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC I
 NUMBER OF NODES IS 15

STEREO ATTRIBUTES: NONE

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 OR L43 OR L44)
 L66 30 SEA FILE=HCAPLUS ABB=ON PLU=ON L65 AND HARD?(3A) (RUBB
 ER? OR ELASTOMER?)

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 13:00:00 ON 29 NOV 2005

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L66 ANSWER 1 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

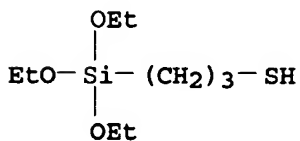
ACCESSION NUMBER: 2005:822075 HCAPLUS
 DOCUMENT NUMBER: 143:231174
 TITLE: Vulcanizable rubber mixture and thermoplastic copolymer mixture containing amino-derivatives of fatty acid sarcosides, procedure and use.
 INVENTOR(S): Bertrand, Joachim; Hensel, Manfred; Kirchner, Lutz; Umland, Henning
 PATENT ASSIGNEE(S): Schill & Seilacher 'Struktol' AG, Germany
 SOURCE: Ger. Offen., 16 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 102004005132	A1	20050818	DE 2004-102004005132	2004 0202
PRIORITY APPLN. INFO.:			DE 2004-102004005132	2004 0202

AB Vulcanizable rubber mixts. and thermoplastic copolymer mixts. contain precipitated silica as a filler, amino-derivs. of fatty acid sarcosides as a viscosity-reducing material and silane-derivs. as a coupling agent for silica. Thus, a rubber composition containing 103.1 weight parts of styrene-butadiene rubber (Buna VSL 5025-1), 25 weight parts of butadiene rubber (Buna CB10), 80 weight parts of silica (Ultrasil 7000GR), 5 weight parts of aromatic oil Sundex 790, 12.5 weight parts of coupling agent X 50S, 3 weight parts of stearyl sarcoside, 2.5 parts of ZnO, antioxidants, sulfur, vulcanization agents and stearic acid vulcanized 33 min at 160° gave a rubber having shore A hardness 62 and tensile strength 18.3 mpa s increasing on 6% after keeping 1 wk at 70°.

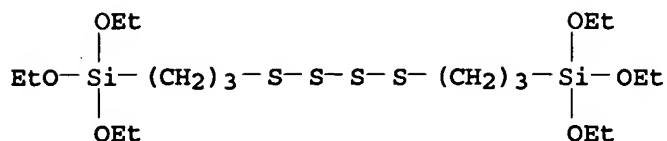
IT 14814-09-6, 3-Mercaptopropyltriethoxysilane
 40372-72-3, Bis(3-triethoxysilylpropyl)tetrasulfide
 56859-24-6, 3-Thiocyanatopropyltrimethoxysilane
 (coupling agent for silica; vulcanizable rubber mixts. and thermoplastic copolymer mixts. contain precipitated silica as a filler, amino-derivs. of fatty acid sarcosides as a viscosity-reducing material and silane-derivs. as a coupling agent)

RN 14814-09-6 HCAPLUS
 CN 1-Propanethiol, 3-(triethoxysilyl)- (7CI, 8CI, 9CI) (CA INDEX NAME)



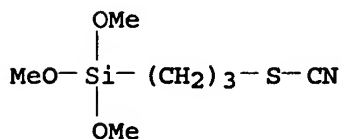
RN 40372-72-3 HCAPLUS
 CN 3,16-Dioxa-8,9,10,11-tetrathia-4,15-disilaooctadecane,

4,4,15,15-tetraethoxy- (9CI) (CA INDEX NAME)



RN 56859-24-6 HCAPLUS

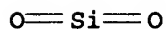
CN Thiocyanic acid, 3-(trimethoxysilyl)propyl ester (9CI) (CA INDEX NAME)



IT 7631-86-9, Ultrasil 7000GR, uses
 (vulcanizable rubber mixts. and thermoplastic copolymer mixts.
 contain precipitated silica as a filler, amino-derivs. of fatty acid
 sarcosides as a viscosity-reducing material and silane-derivs.
 as a coupling agent)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM C08K005-17

ICS C08L021-00; C08J003-18; C08K005-54; B60C001-00

CC 39-9 (Synthetic Elastomers and Natural Rubber)

IT Amides, uses

(of fatty acid sarcosides, lubricants; vulcanizable
 rubber mixts. contain precipitated silica as a
 filler, amino-derivs. of fatty acid sarcosides as a
 viscosity-reducing material and silane-derivs. as a coupling
 agent)

IT 14814-09-6, 3-Mercaptopropyltriethoxysilane

40372-72-3, Bis(3-triethoxysilylpropyl)tetrasulfide

56859-24-6, 3-Thiocyanatopropyltrimethoxysilane

(coupling agent for silica; vulcanizable
 rubber mixts. and thermoplastic copolymer mixts.
 contain precipitated silica as a filler, amino-derivs. of fatty acid
 sarcosides as a viscosity-reducing material and silane-derivs.
 as a coupling agent)

IT 7631-86-9, Ultrasil 7000GR, uses

(vulcanizable rubber mixts. and thermoplastic copolymer mixts.
 contain precipitated silica as a filler, amino-derivs. of fatty acid
 sarcosides as a viscosity-reducing material and silane-derivs.
 as a coupling agent)

L66 ANSWER 2 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:322868 HCAPLUS

DOCUMENT NUMBER: 142:356551

TITLE: Curable fluoropolyether rubber compositions and their cured products for automobiles, plants, ink-jet printers, semiconductor devices, chemical or medical devices, aircrafts, and fuel cells with excellent mold releasability and mechanical strength

INVENTOR(S): Osawa, Yasuhisa; Matsuda, Takashi; Sato, Makoto; Yamaguchi, Hiromasa

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 23 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005097369	A2	20050414	JP 2003-330556	2003 0922
PRIORITY APPLN. INFO.: JP 2003-330556				2003 0922

AB The compns., useful for diaphragms, valves, o-rings, sealants, gaskets, packings, and joints, contain linear 100 parts fluoropolyethers (A) bearing ≥ 2 alkenyl groups, organosilicon compds. (B) bearing ≥ 2 of H atoms bonded to Si, 1-200 parts alumina powders (C) with average particle size $\leq 1 \mu\text{m}$, and hydrosilylation catalysts (D) at molar ratio of Si-H groups in B to alkenyl groups in A 0.5-5. Thus, a 100:50 mixture of a base composition containing dimethylvinylsilyl-terminated perfluoropolyoxypropylene 100, dimethylchlorosilane-treated SiO₂ 25, C₈F₁₇CH₂CH₂Si(OSiHMe₂)₃ 2.74, and a modified chloroplatinic acid solution 0.2 part and Al₂O₃ was press-cured at 150° in a mold to give a test piece showing no mold abrasion and Durometer A hardness 62, elongation 350%, tensile strength 23 kN/m, and compression set (200°, 20 h, 25% compression) 19%.

IT 7631-86-9, Fumed silica, uses
(colloidal, dimethylchlorosilane-treated, filler;
hydrosilylation-curable fluoropolyether rubber compns. for
diaphragms, gaskets, and sealants with good mold releasability
and strength)

RN 7631-86-9 HCAPLUS

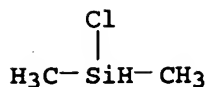
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 1066-35-9, Dimethylchlorosilane
(fumed silica treated with, filler; hydrosilylation-curable
fluoropolyether rubber compns. for diaphragms, gaskets, and
sealants with good mold releasability and strength)

RN 1066-35-9 HCAPLUS

CN Silane, chlorodimethyl- (6CI, 8CI, 9CI) (CA INDEX NAME)



IT 291525-37-6P

(rubber; hydrosilylation-curable fluoropolyether rubber compns.
for diaphragms, gaskets, and sealants with good mold
releasability and strength)

RN 291525-37-6 HCAPLUS

CN Trisiloxane, 3-[(dimethylsilyl)oxy]-3-
(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluorodecyl)-
1,1,5,5-tetramethyl-, polymer with α,α' -(1,1,2,2-
tetrafluoro-1,2-ethanediyl)bis[ω -[1-[[[3-
(ethenyldimethylsilyl)phenyl]methylamino]carbonyl]-1,2,2,2-
tetrafluoroethoxy]poly[oxy[trifluoro(trifluoromethyl)-1,2-
ethanediyl]]] (9CI) (CA INDEX NAME)

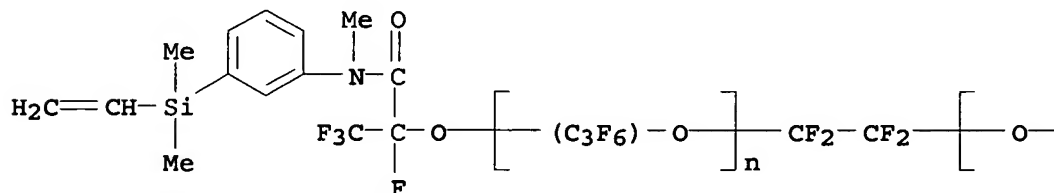
CM 1

CRN 189380-14-1

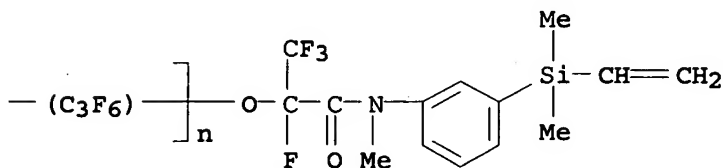
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CCI IDS, PMS

PAGE 1-A



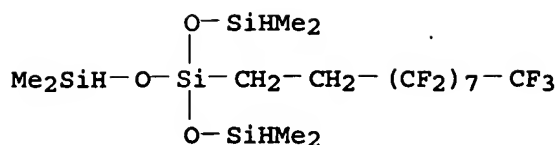
PAGE 1-B



CM 2

CRN 133068-46-9

CMF C16 H25 F17 O3 Si4



- IC ICM C08L071-00
ICS C08K003-22; C08K005-541; C08K009-06; F16J003-02; F16J015-10;
C08L083-05
- CC 39-15 (Synthetic Elastomers and Natural Rubber)
Section cross-reference(s): 37
- ST fluoropolyether rubber hydrosilylation curing
hardness gasket; mold releasability perfluoro
polyoxyalkylene alumina powder; silane treatment silica
filler rubber strength
- IT 7631-86-9, Fumed silica, uses
(colloidal, dimethylchlorosilane-treated, filler;
hydrosilylation-curable fluoropolyether rubber compns. for
diaphragms, gaskets, and sealants with good mold releasability
and strength)
- IT 1066-35-9, Dimethylchlorosilane
(fumed silica treated with, filler; hydrosilylation-curable
fluoropolyether rubber compns. for diaphragms, gaskets, and
sealants with good mold releasability and strength)
- IT 291525-37-6P
(rubber; hydrosilylation-curable fluoropolyether rubber compns.
for diaphragms, gaskets, and sealants with good mold
releasability and strength)

L66 ANSWER 3 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:297666 HCAPLUS

DOCUMENT NUMBER: 142:356514

TITLE: UV-curable polymer compositions with high
hardness and mechanical strength

INVENTOR(S): Goto, Tomoyuki; Inoue, Yoshifumi

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005089672	A2	20050407	JP 2003-327377	2003 0919

PRIORITY APPLN. INFO.: JP 2003-327377

2003
0919

AB The compns. comprise UV-curable liquid polymers, fillers
surface-treated with compds. having UV-reactive groups, and
photopolymer. initiators. Thus, a composition comprising
3-acryloyloxypropyl-terminated dimethylsiloxane,
3-methacryloyloxypropyltrimethoxysilane-treated silica (Aerosil R

7200), and diethoxyacetophenone was UV-cured to give a test piece showing tensile strength 0.9 MPa and hardness 36.

IT 7631-86-9, Aerosil 200, properties
(colloidal, surface-treated; surface-treated fillers for UV-curable silicone rubbers with high hardness and mech. strength)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 158366-76-8P
(rubber; surface-treated fillers for UV-curable silicone rubbers with high hardness and mech. strength)

RN 158366-76-8 HCAPLUS

CN Poly[oxy(dimethylsilylene)], α -[dimethyl[3-[(1-oxo-2-propenyl)oxy]propyl]silyl]- ω -[[dimethyl[3-[(1-oxo-2-propenyl)oxy]propyl]silyl]oxy]-, homopolymer (9CI) (CA INDEX NAME)

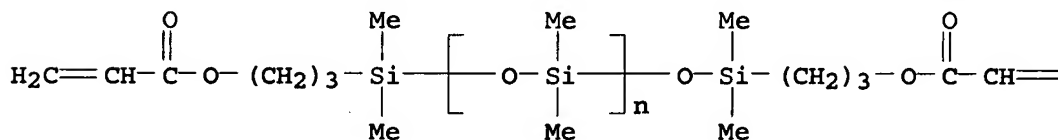
CM 1

CRN 58170-10-8

CMF (C2 H6 O Si)_n C16 H30 O5 Si2

CCI PMS

PAGE 1-A



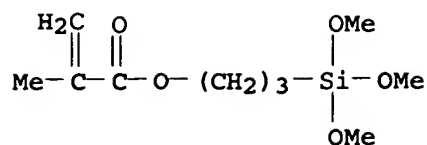
PAGE 1-B

=CH₂

IT 2530-85-0, 3-Methacryloxypropyltrimethoxysilane
(treating silica with; surface-treated fillers for UV-curable silicone rubbers with high hardness and mech. strength)

RN 2530-85-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-(trimethoxysilyl)propyl ester (9CI)
(CA INDEX NAME)



- ```

IC ICM C08L101-02
 ICS C08K009-06; C08L083-04
CC 39-9 (Synthetic Elastomers and Natural Rubber)
ST UV curable silicone rubber silica
 hardness; methacryloxypropylmethoxysilane silica
 filler acrylic methylsiloxane rubber
IT Coupling agents
 (UV-reactive silanes, treating silica with; surface-treated
 fillers for UV-curable silicone rubbers with high
 hardness and mech. strength)
IT Silanes
 (UV-reactive, hydrolyzable, treating silica with;
 surface-treated fillers for UV-curable silicone rubbers
 with high hardness and mech. strength)
IT Silicone rubber, preparation
 (acrylic-; surface-treated fillers for UV-curable silicone
 rubbers with high hardness and mech.
 strength)
IT Acrylic rubber
 (siloxane-; surface-treated fillers for UV-curable silicone
 rubbers with high hardness and mech.
 strength)
IT 7631-86-9, Aerosil 200, properties
 (colloidal, surface-treated; surface-treated fillers for
 UV-curable silicone rubbers with high
 hardness and mech. strength)
IT 158366-76-8P
 (rubber; surface-treated fillers for UV-curable silicone
 rubbers with high hardness and mech.
 strength)
IT 442681-76-7, Aerosil R 7200
 (surface-treated fillers for UV-curable silicone
 rubbers with high hardness and mech.
 strength)
IT 2530-85-0, 3-Methacryloxypropyltrimethoxysilane
 (treating silica with; surface-treated fillers for UV-curable
 silicone rubbers with high hardness and
 mech. strength)

```

ACCESSION NUMBER: 2005:72799 HCAPLUS

**TITLE:** Silica-compounded rubber

INVENTOR(S) : Yatsuyanagi, Akira; Kirino, Yoshiaki;  
Maruyama, Tsukasa; Ishikawa, Kazunori

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

DOCUMENT TYPE: Patent

**LANGUAGE:** Japanese

FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE         |
|------------------------|------|----------|-----------------|--------------|
| JP 2005023134          | A2   | 20050127 | JP 2003-187579  | 2003<br>0630 |
| PRIORITY APPLN. INFO.: |      |          |                 | 2003<br>0630 |

AB Title compns., also having low hysteresis loss, contain 100 parts diene rubbers, 5-90 parts SiO<sub>2</sub>, 1-10 parts phenolic resins, resin hardeners, and 1-20% (based on 100 parts SiO<sub>2</sub>) S-containing silane couplers having alkoxy-silyl groups and main chain with structure as (YSx)<sub>n</sub> [Y = (hetero)organic group; n = 2-50; x = 1.5-4]. A composition containing SBR 1712 137.5, Nipsil AQ 80, S 2, Thiokol LP 3 and glycidoxypropyltrimethoxysilane product (I) 4, Sumikanol 610 3, and Sumikanol 507A 6.5 parts showed a 100° Mooney viscosity (ML) 92 and was vulcanized to form a test piece with break strength 22.3 MPA and 70° tanδ 0.156; vs., 23.0 and 0.163, resp., for a sample prepared from a I-, Sumikanol 610- and Sumikanol 507A-free similar composition with ML of 110.

IT 7631-86-9, Nipsil AQ, uses  
 (SiO<sub>2</sub>-compounded diene rubber compns. containing alkoxy-silyl-polysulfide couplers and phenolic resin/hardeners for mech. strength and processability)

RN 7631-86-9 HCAPLUS

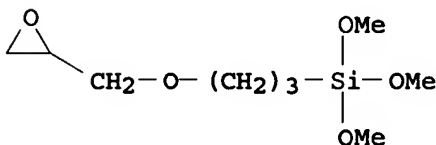
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 2530-83-8DP, 3-Glycidoxypropyltrimethoxysilane, reaction products with polysulfide rubbers 24801-88-5DP, 3-Isocyanatopropyltriethoxysilane, reaction products with ethoxylated polysulfide rubbers and alkoxy-silyl-containing polysulfides 40372-72-3DP, Bis(3-triethoxysilylpropyl)tetrasulfide, reaction products with isocyanatoalkoxysilanes and ethoxylated polysulfide rubbers (rubber, coupler; SiO<sub>2</sub>-compounded diene rubbers containing thioalkoxysilane couplers and phenolic resin/hardeners for processability and mech. strength)

RN 2530-83-8 HCAPLUS

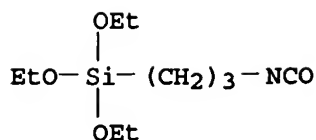
CN Silane, trimethoxy[3-(oxiranylmethoxy)propyl]- (9CI) (CA INDEX NAME)



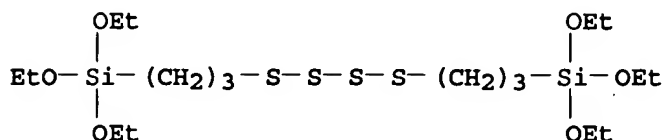
RN 24801-88-5 HCAPLUS

CN Silane, triethoxy(3-isocyanatopropyl)- (9CI) (CA INDEX NAME)





RN 40372-72-3 HCAPLUS  
 CN 3,16-Dioxa-8,9,10,11-tetrathia-4,15-disilaooctadecane,  
 4,4,15,15-tetraethoxy- (9CI) (CA INDEX NAME)



IC ICM C08L021-00  
 ICS C08K003-36; C08L081-04; C08L061-06  
 CC 39-9 (Synthetic Elastomers and Natural Rubber)  
 ST silica diene rubber phenolic resin  
 hardener alkoxyethyl polysulfide coupler; mech strength  
 processability viscoelastic property silica compounded  
 diene rubber  
 IT 7631-86-9, Nipsil AQ, uses  
 (SiO<sub>2</sub>-compounded diene rubber compns. containing  
 alkoxyethyl-polysulfide couplers and phenolic resin/hardeners  
 for mech. strength and processability)  
 IT 75-21-8DP, Ethylene oxide, reaction products with polysulfide  
 rubbers and NCO-containing alkoxyethylanes and alkoxyethyl-containing  
 polysulfides 2530-83-8DP, 3-  
 Glycidoxypropyltrimethoxysilane, reaction products with  
 polysulfide rubbers 24801-88-5DP, 3-  
 Isocyanatopropyltriethoxysilane, reaction products with  
 ethoxylated polysulfide rubbers and alkoxyethyl-containing  
 polysulfides 40372-72-3DP, Bis(3-  
 triethoxysilylpropyl)tetrasulfide, reaction products with  
 isocyanatoalkoxyethylanes and ethoxylated polysulfide rubbers  
 (rubber, coupler; SiO<sub>2</sub>-compounded diene rubbers containing  
 thioalkoxyethylanes couplers and phenolic resin/hardeners for  
 processability and mech. strength)

L66 ANSWER 5 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:940079 HCAPLUS

DOCUMENT NUMBER: 142:318054

TITLE: Effect of nitrile rubber on  
 properties of silica-filled natural  
 rubber compounds

AUTHOR(S): Yan, Hexiang; Sun, Kang; Zhang, Yong; Zhang,  
 Yinxu

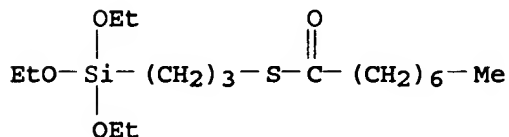
CORPORATE SOURCE: State Key Laboratory of Metal Matrix  
 Composites, Shanghai Jiao Tong University,  
 Shanghai, 200030, Peop. Rep. China

SOURCE: Polymer Testing (2004), Volume Date 2005,  
 24(1), 32-38

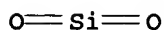
CODEN: POTESZ; ISSN: 0142-9418

PUBLISHER: Elsevier B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

- AB The effect of nitrile rubber (NBR) on the properties of silica-filled natural rubber (NR) compds. was studied in the presence of a new silane coupling agent, 3-octanoylthio-1-propyltriethoxysilane (NXT). The properties of silica-filled NR compds. were improved by adding NBR. The torque at equilibrium of compds. decreased with increasing NBR content. The dispersion of silica was improved by adding NBR. The scorch time and optimum cure time became shorter with increasing NBR content. The crosslink d. of silica-filled NR vulcanizates also increased with increasing NBR content. The modulus and hardness of NR vulcanizates were increased by adding NBR. The wet traction of the NR vulcanizates containing NBR was better than that without NBR, but rolling resistance of the vulcanizates containing NBR was worse than that without NBR.
- IT 220727-26-4, NXT Silane  
 (coupling agent; nitrile rubber effects on properties of silica-filled natural rubber compds.)
- RN 220727-26-4 HCAPLUS
- CN Octanethioic acid, S-[3-(triethoxysilyl)propyl] ester (9CI) (CA INDEX NAME)



- IT 7631-86-9, VN3, uses  
 (nitrile rubber effects on properties of silica-filled natural rubber compds.)
- RN 7631-86-9 HCAPLUS
- CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



- CC 39-12 (Synthetic Elastomers and Natural Rubber)
- ST nitrile natural rubber blend silica mech property
- IT Nitrile rubber, properties  
 (CKH 40, blends; nitrile rubber effects on properties of silica-filled natural rubber compds.)
- IT Natural rubber, properties  
 (RSS1, blends; nitrile rubber effects on properties of silica-filled natural rubber compds.)
- IT Crosslink density  
 Elongation at break  
 Hardness (mechanical)  
 Polymer morphology  
 Swelling, physical  
 Tensile strength  
 Torque  
 (nitrile rubber effects on properties of silica-filled natural rubber compds.)

IT Polymer blends  
(nitrile rubber-natural rubber; nitrile rubber effects on  
properties of silica-filled natural rubber  
comps.)

IT 220727-26-4, NXT Silane  
(coupling agent; nitrile rubber effects on properties of  
silica-filled natural rubber comps.)

IT 7631-86-9, VN3, uses  
(nitrile rubber effects on properties of silica  
-filled natural rubber comps.)

IT 9003-18-3  
(nitrile rubber, CKH 40, blends; nitrile rubber effects on  
properties of silica-filled natural rubber  
comps.)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L66 ANSWER 6 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:41555 HCAPLUS

DOCUMENT NUMBER: 140:95418

TITLE: Silica-rubber mixtures  
having improved hardness and  
compounded article

INVENTOR(S): Joshi, Prashant G.; Chaves, Antonio; Hwang,  
Leslie; Stout, Michael; Hofstetter, Martin;  
Panzer, Louis M.

PATENT ASSIGNEE(S): Crompton Corporation, USA

SOURCE: PCT Int. Appl., 108 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND                                                                                                                                                                                                                                                                                                                                                                   | DATE     | APPLICATION NO. | DATE         |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|--------------|
| WO 2004005395 | A2                                                                                                                                                                                                                                                                                                                                                                     | 20040115 | WO 2003-US21616 | 2003<br>0708 |
| WO 2004005395 | A3                                                                                                                                                                                                                                                                                                                                                                     | 20040805 |                 |              |
| W:            | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW |          |                 |              |
| RW:           | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG                                                                                                         |          |                 |              |
| EP 1551913    | A2                                                                                                                                                                                                                                                                                                                                                                     | 20050713 | EP 2003-763461  | 2003<br>0708 |
| R:            | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK                                                                                                                                                                                                                                             |          |                 |              |

JP 2005533140

T2

20051104

JP 2004-520123

2003  
0708

PRIORITY APPLN. INFO.:

US 2002-394264P

P

2002  
0709

US 2003-451449P

P

2003  
0303

WO 2003-US21616

W

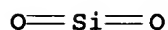
2003  
0708

AB Increasing the hardness of SiO<sub>2</sub>/rubber mixts. comprises blending with the mixture  $\geq 1$  silane and  $\geq 1$  member selected from thixotropic fumed SiO<sub>2</sub>, precipitated SiO<sub>2</sub>, an MQ resin where Q is SiO<sub>4</sub>/2, M is R<sub>1</sub>R<sub>2</sub>R<sub>3</sub>SiO<sub>1</sub>/2, and R<sub>1</sub>, R<sub>2</sub>, and R<sub>3</sub> = functional or nonfunctional organic groups, C black, various fillers, a thermoplastic resin, and a thermosetting resin. The mechanism of hardness-increase using C black is thought to be hydrodynamic in nature and/or via formation of bound rubber.

IT 7631-86-9, Fumed silica, uses  
(colloidal; for mixing with silica-rubber  
mixts. for improving hardness)

RN 7631-86-9 HCAPLUS

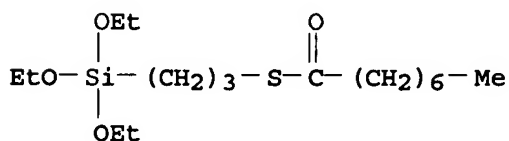
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 220727-26-4P  
(coupling agent; for mixing with silica-  
rubber mixts. and hardness additives)

RN 220727-26-4 HCAPLUS

CN Octanethioic acid, S-[3-(triethoxysilyl)propyl] ester (9CI) (CA  
INDEX NAME)



IT 138184-94-8, Cab-O-Sil TS 720 146701-60-2,  
Cab-O-Sil TS 530 158766-37-1, Cab-O-Sil TS 610  
(for mixing with silica-rubber mixts. for  
improving hardness)

RN 138184-94-8 HCAPLUS

CN Cab-O-Sil TS 720 (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 146701-60-2 HCAPLUS

CN Cab-O-Sil TS 530 (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 158766-37-1 HCAPLUS  
 CN Cab-O-Sil TS 610 (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 56275-01-5  
 (for mixing with silica-rubber mixts. for  
 improving hardness)

RN 56275-01-5 HCAPLUS  
 CN Silicic acid, trimethylsilyl ester (9CI) (CA INDEX NAME)

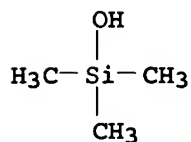
CM 1

CRN 1343-98-2  
 CMF Unspecified  
 CCI MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

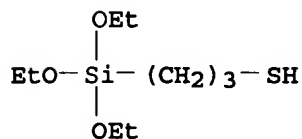
CM 2

CRN 1066-40-6  
 CMF C3 H10 O Si



IT 14814-09-6, 3-Mercaptopropyltriethoxysilane  
 (reaction with octanoyl chloride; coupling agent for mixing  
 with silica-rubber mixts. and  
 hardness additives)

RN 14814-09-6 HCAPLUS  
 CN 1-Propanethiol, 3-(triethoxysilyl)- (7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM C08K009-00  
 CC 39-9 (Synthetic Elastomers and Natural Rubber)  
 ST hardness additive silica rubber mixt  
 IT Aluminosilicates, uses  
 Carbon black, uses  
 Carbon fibers, uses  
 Glass fibers, uses  
 Kaolin, uses  
 MQ resins  
 Mica-group minerals, uses  
 Polyamides, uses  
 Polycarbonates, uses  
 Polyimides, uses

Polythiophenylenes

Silanes

(for mixing with silica-rubber mixts. for improving hardness)

IT Tires

(improving hardness of silica-rubber mixts. while maintaining hysteresis, low rolling resistance and wet traction in tire compds.)

IT Styrene-butadiene rubber, properties

(improving hardness of silica-rubber mixts. while maintaining hysteresis, low rolling resistance and wet traction in tire compds.)

IT Butadiene rubber, properties

(of cis-1,4-configuration; improving hardness of silica-rubber mixts. while maintaining hysteresis, low rolling resistance and wet traction in tire compds.)

IT Polyimides, uses

(polyamide-; for mixing with silica-rubber mixts. for improving hardness)

IT Polyamides, uses

(polyimide-; for mixing with silica-rubber mixts. for improving hardness)

IT Plastics, uses

(thermoplastics; for mixing with silica-rubber mixts. for improving hardness)

IT Plastics, uses

(thermosetting; for mixing with silica-rubber mixts. for improving hardness)

IT 9003-17-2

(butadiene rubber, of cis-1,4-configuration; improving hardness of silica-rubber mixts. while maintaining hysteresis, low rolling resistance and wet traction in tire compds.)

IT 7631-86-9, Fumed silica, uses

(colloidal; for mixing with silica-rubber mixts. for improving hardness)

IT 111-64-8, Octanoyl chloride

(coupling agent for mixing with silica-rubber mixts. and hardness additives)

IT 220727-26-4P

(coupling agent; for mixing with silica-rubber mixts. and hardness additives)

IT 138184-94-8, Cab-O-Sil TS 720 146701-60-2,

Cab-O-Sil TS 530 158766-37-1, Cab-O-Sil TS 610

(for mixing with silica-rubber mixts. for improving hardness)

IT 471-34-1, Calcium carbonate, uses 1344-28-1, Alumina, uses

9002-88-4, Polyethylene 9011-14-7, Polymethyl methacrylate

13463-67-7, Titanium dioxide, uses 13983-17-0, Wollastonite

14807-96-6, Talc, uses 56275-01-5

(for mixing with silica-rubber mixts. for improving hardness)

IT 14814-09-6, 3-Mercaptopropyltriethoxysilane

(reaction with octanoyl chloride; coupling agent for mixing with silica-rubber mixts. and hardness additives)

IT 9003-55-8

(styrene-butadiene rubber, improving hardness of silica-rubber mixts. while maintaining

hysteresis, low rolling resistance and wet traction in tire compds.)

L66 ANSWER 7 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:15686 HCAPLUS

DOCUMENT NUMBER: 140:272167

TITLE: Reinforcing effect of silica and silane fillers on the properties of some natural rubber vulcanizates

AUTHOR(S): Ansarifar, A.; Nijhawan, R.; Nanapoolsin, T.; Song, M.

CORPORATE SOURCE: Institute of Polymer Technology and Materials Engineering, Loughborough University, Leicestershire, LE11 3TU, UK

SOURCE: Rubber Chemistry and Technology (2003), 76(5), 1290-1310

CODEN: RCTEA4; ISSN: 0035-9475

PUBLISHER: American Chemical Society, Rubber Division

DOCUMENT TYPE: Journal

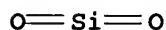
LANGUAGE: English

AB The reinforcing effect of up to 6 parts per hundred rubber by weight (phr) bis- (3-triethoxysilylpropyl) tetrasulfide (TESPT), a bifunctional organosilane, on the crosslink d., bound rubber, and tech. properties of some conventional accelerator/sulfur compds. of natural rubber, containing 30 phr precipitated amorphous white silica was studied. The crosslink d. and bound rubber improved as a function of TESPT loading. The tensile strength, elongation at break, stored energy d. at rupture, and cohesive tear strength deteriorated at low loading of TESPT, but they subsequently increased after the full amount of TESPT was introduced into the compound. The improved properties of the vulcanizate was due to the better dispersion of the filler in the rubber matrix. However, the cyclic fatigue life was adversely affected, and the hardness hardly changed as a result of adding TESPT to the rubber.

IT 7631-86-9, Ultrasil VN 3, uses 40372-72-3, Si 69 (reinforcing effect of silica and silane fillers on properties of natural rubber vulcanizates)

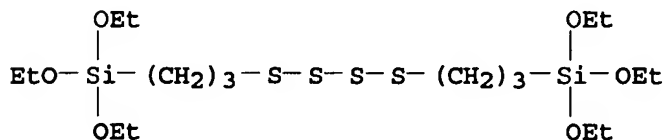
RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 40372-72-3 HCAPLUS

CN 3,16-Dioxa-8,9,10,11-tetrathia-4,15-disilaoctadecane, 4,4,15,15-tetraethoxy- (9CI) (CA INDEX NAME)



CC 39-12 (Synthetic Elastomers and Natural Rubber)

ST natural rubber vulcanizate property silica silane filler reinforcing effect

IT Vulcanization

(of natural rubber containing reinforcing silica and silane fillers)

IT Crosslink density  
 Elongation at break  
 Fatigue, mechanical  
 Hardness (mechanical)  
 Tension  
 Viscosity  
 (of natural rubber vulcanizates containing reinforcing silica and silane fillers)

IT Behavior  
 (reinforced; of natural rubber vulcanizates containing reinforcing silica and silane fillers)

IT Strength  
 (tearing; of natural rubber vulcanizates containing reinforcing silica and silane fillers)

IT 7631-86-9, Ultrasil VN 3, uses 40372-72-3, Si 69  
 (reinforcing effect of silica and silane fillers on properties of natural rubber vulcanizates)

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L66 ANSWER 8 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:619619 HCAPLUS

DOCUMENT NUMBER: 137:312182

TITLE: Finite element modeling of indenter-sample contact during force imaging of filled rubber by atomic force microscopy

AUTHOR(S): Davis, Mark K.; Eby, R. K.

CORPORATE SOURCE: Department and Institute of Polymer Science, University of Akron, Akron, OH, 44325-3909, USA

SOURCE: Rubber Chemistry and Technology (2002), 75(1), 19-28  
 CODEN: RCTEA4; ISSN: 0035-9475

PUBLISHER: American Chemical Society, Rubber Division

DOCUMENT TYPE: Journal

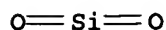
LANGUAGE: English

AB Finite element anal. (FEA) models were developed to study the interaction between atomic force microscope (AFM) tips and filled rubber compds. during nano-indentation. The filled systems were represented by simple models consisting of one or two discrete hard domains in a rubber matrix in order to study how such a hard domain at or near the location of an indentation measurement affected the force-distance response. Parameters studied included domain size and shape, lateral position and depth from the indentation location, effect of sample thickness, and the ability to measure modulus variation across "rubber-particle" interfaces. The analyses showed the degree to which the underlying and adjacent sample regions influenced the force-distance response at a given location. The results identified several limitations of force imaging as a characterization technique for filled systems and suggested a basis for the development of more complex FEA models.

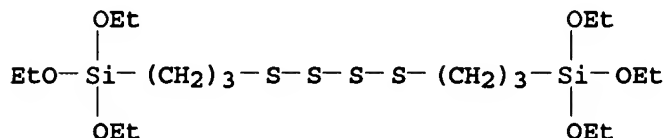
IT 7631-86-9, Silica, uses 40372-72-3,  
 Bis(3-triethoxysilylpropyl tetrasulfane  
 (finite element modeling of indenter-sample contact during force imaging of silane coupling agent-treated silica-filled SBR rubber by atomic force microscopy)



RN 7631-86-9 HCAPLUS  
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 40372-72-3 HCAPLUS  
 CN 3,16-Dioxa-8,9,10,11-tetrathia-4,15-disilaooctadecane,  
 4,4,15,15-tetraethoxy- (9CI) (CA INDEX NAME)



CC 39-12 (Synthetic Elastomers and Natural Rubber)  
 ST nanoindentation filled rubber AFM finite element; silica  
 filled SBR rubber nanoindentation AFM  
 IT Coupling agents  
 Interface  
 Polymer morphology  
 (finite element modeling of indenter-sample contact during  
 force imaging of silane coupling agent-treated silica  
 -filled SBR rubber by atomic force microscopy)  
 IT Styrene-butadiene rubber, properties  
 (finite element modeling of indenter-sample contact during  
 force imaging of silane coupling agent-treated silica  
 -filled SBR rubber by atomic force microscopy)  
 IT Simulation and Modeling, physicochemical  
 (finite-element; finite element modeling of indenter-sample  
 contact during force imaging of silane coupling agent-treated  
 silica-filled SBR rubber by atomic force  
 microscopy)  
 IT 7631-86-9, Silica, uses 40372-72-3,  
 Bis(3-triethoxysilylpropyl tetrasulfane  
 (finite element modeling of indenter-sample contact during  
 force imaging of silane coupling agent-treated silica  
 -filled SBR rubber by atomic force microscopy)  
 IT 9003-55-8  
 (styrene-butadiene rubber, finite element modeling of  
 indenter-sample contact during force imaging of silane coupling  
 agent-treated silica-filled SBR rubber by  
 atomic force microscopy)  
 REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L66 ANSWER 9 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2002:86663 HCAPLUS  
 DOCUMENT NUMBER: 136:311027  
 TITLE: Synthesis and use of colloidal silica for  
 reinforcement in silicone elastomers  
 AUTHOR(S): Kwan, Kermit S.; Harrington, Daniel A.; Moore,  
 Patricia A.; Hahn, James R.; Degroot, Jon V.,  
 Jr.; Burns, Gary T.  
 CORPORATE SOURCE: Dow Corning Corporation, Midland, MI,

SOURCE: 48686-0994, USA  
Rubber Chemistry and Technology (2001), 74(4),  
630-644

CODEN: RCTEA4; ISSN: 0035-9475

PUBLISHER: American Chemical Society, Rubber Division

DOCUMENT TYPE: Journal

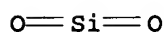
LANGUAGE: English

AB Aqueous suspensions of colloidal silica are readily silylated with either chlorosilanes or disiloxanes in the presence of acid and iso-Pr alc. without aggregation of the silica particle. By using a mixture of chlorosilanes or disiloxanes, spherical nanoparticles with controlled functionality can be made and transferred to an organic phase to provide stable, water free suspensions. The hydrophobic silica particles readily disperse into silicone polymers. At sufficient loading levels, they provide mech. reinforcement comparable to traditional fillers but with improved clarity and lower viscosities. Modulus and durometer control in the cured elastomer is possible by varying the ratio of the vinyl concentration on the filler particle to the vinyl concentration in the polymer phase.

IT 7631-86-9D, Nalco 1050, reaction products with disiloxane or chlorosilane  
(colloidal, Nalco 1050, Nalco 1030, Nalco 2329, Nalco 2326; synthesis and use of functionalized colloidal silica for reinforcement in silicone elastomers)

RN 7631-86-9 HCAPLUS

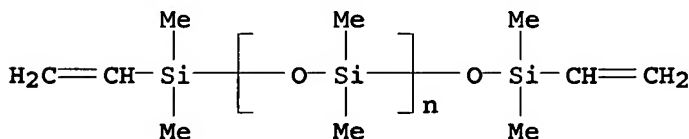
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 59942-04-0, Vinyl-terminated poly(dimethylsiloxane), SRU  
(crosslinked; synthesis and use of functionalized colloidal silica for reinforcement in silicone elastomers)

RN 59942-04-0 HCAPLUS

CN Poly[oxy(dimethylsilylene)],  $\alpha$ -(ethenyldimethylsilyl)-  
 $\omega$ -[(ethenyldimethylsilyl)oxy]- (9CI) (CA INDEX NAME)

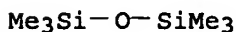


IT 107-46-0D, Hexamethyldisiloxane, reaction products with colloidal silica 30110-75-9D,  
Divinyldimethyldisiloxane, reaction products with colloidal silica

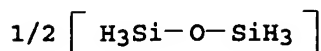
(synthesis and use of functionalized colloidal silica for reinforcement in silicone elastomers)

RN 107-46-0 HCAPLUS

CN Disiloxane, hexamethyl- (8CI, 9CI) (CA INDEX NAME)



RN 30110-75-9 HCAPLUS  
CN Disiloxane, diethenyltetramethyl- (9CI) (CA INDEX NAME)



2 ( D1-Me )

CC 39-9 (Synthetic Elastomers and Natural Rubber)  
ST prepn functionalized colloidal silica filler silicone elastomer  
IT Elongation, mechanical  
Hardness (mechanical)  
Viscosity  
(of silicone elastomers filled with functionalized colloidal silica)  
IT 7631-86-9D, Nalco 1050, reaction products with disiloxane or chlorosilane  
(colloidal, Nalco 1050, Nalco 1030, Nalco 2329, Nalco 2326; synthesis and use of functionalized colloidal silica for reinforcement in silicone elastomers)  
IT 31900-57-9D, Dimethylsilanediol homopolymer, vinyl-terminated  
59942-04-0, Vinyl-terminated poly(dimethylsiloxane), SRU  
(crosslinked; synthesis and use of functionalized colloidal silica for reinforcement in silicone elastomers)  
IT 107-46-0D, Hexamethyldisiloxane, reaction products with colloidal silica 30110-75-9D,  
Divinyltetramethyldisiloxane, reaction products with colloidal silica  
(synthesis and use of functionalized colloidal silica for reinforcement in silicone elastomers)  
REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L66 ANSWER 10 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2002:31355 HCAPLUS  
DOCUMENT NUMBER: 136:71142  
TITLE: Pneumatic tires with run-flat durability and riding comfortability  
INVENTOR(S): Teratani, Hiroyuki; Motofusa, Shinichi; Kondo, Hajime; Nishikawa, Tomohisa; Kusano, Yukihiro; Zuigyou, Yugo  
PATENT ASSIGNEE(S): Bridgestone Corporation, Japan  
SOURCE: PCT Int. Appl., 116 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|------|-----------------|------|
|------------|------|------|-----------------|------|

|                                                             |      |          |                |                   |
|-------------------------------------------------------------|------|----------|----------------|-------------------|
| -----                                                       | ---- | -----    | -----          |                   |
| WO 2002002356                                               | A1   | 20020110 | WO 2001-JP5773 | 2001<br>0703      |
| W: JP, US                                                   |      |          |                |                   |
| RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, |      |          |                |                   |
| MC, NL, PT, SE, TR                                          |      |          |                |                   |
| JP 2002036831                                               | A2   | 20020206 | JP 2000-220137 | 2000<br>0721      |
| JP 2002037927                                               | A2   | 20020206 | JP 2000-220255 | 2000<br>0721      |
| JP 2002036832                                               | A2   | 20020206 | JP 2000-220547 | 2000<br>0721      |
| JP 2002079803                                               | A2   | 20020319 | JP 2001-202744 | 2001<br>0703      |
| EP 1297974                                                  | A1   | 20030402 | EP 2001-945807 | 2001<br>0703      |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,  |      |          |                |                   |
| MC, PT, IE, FI, CY, TR                                      |      |          |                |                   |
| JP 2002103911                                               | A2   | 20020409 | JP 2001-221519 | 2001<br>0723      |
| JP 2002103912                                               | A2   | 20020409 | JP 2001-221520 | 2001<br>0723      |
| JP 2002144807                                               | A2   | 20020522 | JP 2001-259268 | 2001<br>0829      |
| PRIORITY APPLN. INFO.:                                      |      |          | JP 2000-200490 | A<br>2000<br>0703 |
|                                                             |      |          | JP 2000-220137 | A<br>2000<br>0721 |
|                                                             |      |          | JP 2000-220255 | A<br>2000<br>0721 |
|                                                             |      |          | JP 2000-220547 | A<br>2000<br>0721 |
|                                                             |      |          | JP 2000-222144 | A<br>2000<br>0724 |
|                                                             |      |          | JP 2000-222145 | A<br>2000<br>0724 |
|                                                             |      |          | JP 2000-258852 | A<br>2000         |

0829

JP 2000-263350

A

2000  
0831

WO 2001-JP5773

W

2001  
0703

AB Title tires contain hard rubber components on the beads and/or rubber components on the sidewalls prepared from rubber compns. which show min. dynamic modulus (A1) at 200-250° of ≥75% of dynamic modulus (A2) at 50° and/or contain conjugated diene rubbers with ≥25% units of vinyl configuration and/or rubbers containing ≥40% of N- and/or Si-containing conjugated diene rubbers. A composition containing natural rubber 20, JSR BR 01 80, Vulcuren trial product KA 9188 (I) 3.0, carbon black 60, and S 5 parts was vulcanized to form a sheet with A2 of 11.4 MPa and A1/A2 of 87.4%, which was used to form the sidewall component (at interior of carcass) of a tire showing riding comfortability index 5.5 and run-flat durability index 109%; vs. 5.0 and 100% for a tire prepared from a I-free similar composition with A1/A2 of 70%.

IT 7631-86-9, Silica, uses  
(filler; rubber compns. with controlled dynamic modulus or specific conjugated diene rubbers for tire beads or sidewalls)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

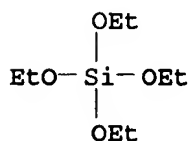
O=Si=O

IT 78-10-4, Tetraethoxysilane 2031-67-6,  
Methyltriethoxysilane 2530-83-8, 3-  
Glycidoxypropyltrimethoxysilane 2530-86-1  
2602-34-8, 3-Glycidoxypropyltriethoxysilane  
58068-97-6 110592-35-3 116229-43-7

(terminal modification agent for conjugated diene rubber;  
rubber compns. with controlled dynamic modulus or specific  
conjugated diene rubbers for tire beads or sidewalls)

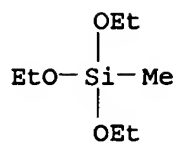
RN 78-10-4 HCAPLUS

CN Silicic acid (H4SiO4), tetraethyl ester (8CI, 9CI) (CA INDEX NAME)



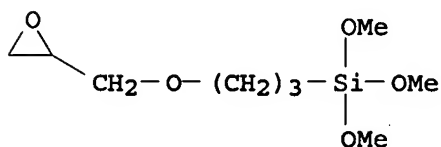
RN 2031-67-6 HCAPLUS

CN Silane, triethoxymethyl- (8CI, 9CI) (CA INDEX NAME)



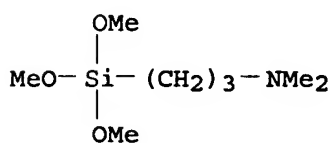
RN 2530-83-8 HCAPLUS

CN Silane, trimethoxy[3-(oxiranylmethoxy)propyl]- (9CI) (CA INDEX NAME)



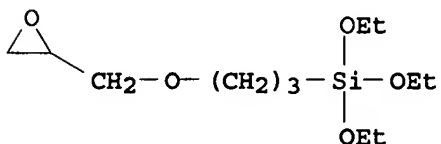
RN 2530-86-1 HCAPLUS

CN 1-Propanamine, N,N-dimethyl-3-(trimethoxysilyl)- (9CI) (CA INDEX NAME)



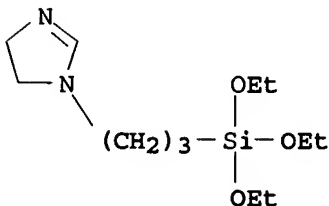
RN 2602-34-8 HCAPLUS

CN Silane, triethoxy[3-(oxiranylmethoxy)propyl]- (9CI) (CA INDEX NAME)



RN 58068-97-6 HCAPLUS

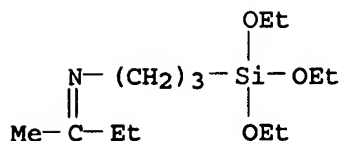
CN 1H-Imidazole, 4,5-dihydro-1-[3-(triethoxysilyl)propyl]- (9CI) (CA INDEX NAME)



RN 110592-35-3 HCAPLUS

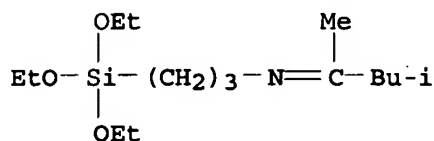
CN 1-Propanamine, N-(1-methylpropylidene)-3-(triethoxysilyl)- (9CI)

(CA INDEX NAME)



RN 116229-43-7 HCAPLUS

CN 1-Propanamine, N-(1,3-dimethylbutylidene)-3-(triethoxysilyl)-(9CI) (CA INDEX NAME)



IC ICM B60C017-00

ICS B60C001-00; C08L021-00

CC 39-13 (Synthetic Elastomers and Natural Rubber)

IT 471-34-1, Calcium carbonate, uses 546-93-0, Magnesium carbonate  
 1344-28-1, Alumina, uses 7631-86-9, Silica,  
 uses 21645-51-2, Aluminum hydroxide, uses  
 (filler; rubber compns. with controlled dynamic  
 modulus or specific conjugated diene rubbers for tire beads or  
 sidewalls)

IT 78-10-4, Tetraethoxysilane 80-73-9 90-93-7,  
 4,4'-Bis(diethylamino)benzophenone 101-68-8, MDI 530-44-9,  
 4-(Dimethylamino)benzophenone 639-58-7, Triphenyltin chloride  
 683-18-1, Dibutyltin dichloride 872-50-4, N-Methylpyrrolidone,  
 uses 889-37-2 1461-22-9, Tributyltin chloride  
 2031-67-6, Methyltriethoxysilane 2530-83-8,  
 3-Glycidoxypropyltrimethoxysilane 2530-86-1  
 2602-34-8, 3-Glycidoxypropyltriethoxysilane 2929-80-8  
 3542-36-7, Dioctyltin dichloride 4271-96-9, 2,3-Dimethyl-3,4,5,6-  
 tetrahydropyrimidine 7646-78-8, Stannic tetrachloride, uses  
 9016-87-9 26471-62-5, TDI 40424-21-3, 1,3-Diethyl-2-  
 imidazolidinone 58068-97-6 110592-35-3  
 116229-43-7

(terminal modification agent for conjugated diene rubber;  
 rubber compns. with controlled dynamic modulus or specific  
 conjugated diene rubbers for tire beads or sidewalls)

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L66 ANSWER 11 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:86345 HCAPLUS

DOCUMENT NUMBER: 134:148830

TITLE: Silicone rubber compositions with  
 low hardness and tension set

INVENTOR(S): Irie, Masakazu

PATENT ASSIGNEE(S): Dow Corning Toray Silicone Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE         |
|---------------|------|----------|-----------------|--------------|
| -----         | ---- | -----    | -----           |              |
| JP 2001031868 | A2   | 20010206 | JP 1999-208416  | 1999<br>0723 |

PRIORITY APPLN. INFO.: JP 1999-208416

1999  
0723

AB The compns., giving cured products with Ascar C hardness 5-60, contain (A) 100 parts  $\text{RaSiO}(4-a)/2$  [R = (un)substituted hydrocarbyl containing 0-0.08 mol% alkenyl; a = 1.95-2.05], (B) 0.01-10 parts organic compds. (mol. weight  $\leq 10,000$ ) containing 5-40% alkenyl or alkynyl group in a mol, (C) 5-500 parts inorg. fillers, and (D) organic peroxides. Thus, 100 parts a mixture containing silanol-terminated di-Me siloxanes 100,  $\text{MeSi}[\text{OSiMe}_2(\text{CH}:\text{CH}_2)]_3$  0.15, and Aerosil 50 (fumed silica) 15 parts was mixed with 0.6 part 2,5-dimethyl-2,5-di(tert-butylperoxy)hexane and vulcanized to give a sheet with Ascar C hardness (JIS A 6050) 22 and tension set (JIS K 6301) 6%.

IT 323183-69-3P 323183-74-0P  
 (rubber, vulcanized; silicone rubber compns. with low hardness and tension set)

RN 323183-69-3 HCAPLUS

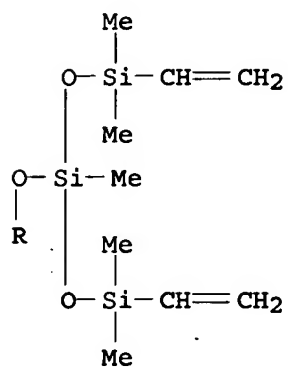
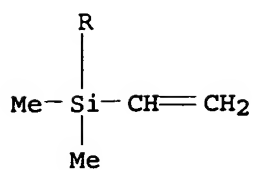
CN Trisiloxane, 1,5-diethenyl-3-[(ethenyldimethylsilyl)oxy]-1,1,3,5,5-pentamethyl-, polymer with  $\alpha$ -hydro- $\omega$ -hydroxypoly[oxy(dimethylsilylene)] (9CI) (CA INDEX NAME)

CM 1

CRN 60111-52-6

CMF C13 H30 O3 Si4



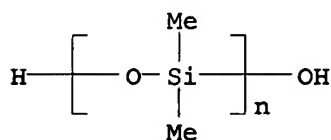


CM 2

CRN 31692-79-2

CMF (C2 H6 O Si)<sub>n</sub> H2 O

CCI PMS



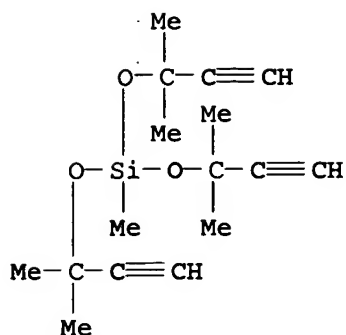
RN 323183-74-0 HCAPLUS

CN Poly[oxy(dimethylsilylene)], α-hydro-ω-hydroxy-,  
 polymer with tris[(1,1-dimethyl-2-propynyl)oxy]methyilsilane (9CI)  
 (CA INDEX NAME)

CM 1

CRN 83817-71-4

CMF C16 H24 O3 Si

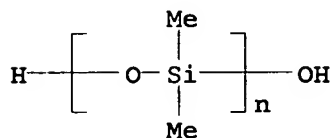


CM 2

CRN 31692-79-2

CMF (C2 H6 O Si)<sub>n</sub> H2 O

CCI PMS



IT 7631-86-9, Aerosil 50, uses  
(silicone rubber compns. with low hardness  
and tension set)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM C08L083-04

CC 39-9 (Synthetic Elastomers and Natural Rubber)

ST methyl siloxane rubber filler silica peroxide;  
silanol vinyl polysiloxane vulcanization rubber; peroxide  
vulcanization agent silicone rubber

IT Fillers  
(inorg.; silicone rubber compns. with low  
hardness and tension set)

IT Peroxides, uses  
(organic, alkyl- or ester-based; silicone rubber compns.  
with low hardness and tension set)

IT Vulcanization accelerators and agents  
(silicone rubber compns. with low hardness  
and tension set)

IT Silicone rubber, preparation  
(vulcanized; silicone rubber compns. with low  
hardness and tension set)

IT 323183-69-3P 323183-70-6P 323183-71-7P 323183-72-8P

323183-74-0P 323183-75-1P

(rubber, vulcanized; silicone rubber compns. with low

**hardness and tension set)**  
 IT 78-63-7, 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane  
 (silicone **rubber** compns. with low **hardness**  
 and tension set)  
 IT 7631-86-9, Aerosil 50, uses  
 (silicone **rubber** compns. with low **hardness**  
 and tension set)

L66 ANSWER 12 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:85633 HCAPLUS

DOCUMENT NUMBER: 134:148844

TITLE: Manufacture of vulcanized silicone  
**rubbers** with controlled  
**hardness**

INVENTOR(S): Irie, Masakazu

PATENT ASSIGNEE(S): Dow Corning Toray Silicone Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE |
|---------------|------|----------|-----------------|------|
| -----         | ---- | -----    | -----           |      |
| JP 2001031869 | A2   | 20010206 | JP 1999-208417  |      |

1999  
0723

PRIORITY APPLN. INFO.: JP 1999-208417

1999  
0723

AB The rubbers are manufactured by mixing base compns. containing 100 parts diorganopolysiloxanes having units  $R_1aSiO(4-a)/2$  [I,  $R_1 =$  (un)substituted hydrocarbyl;  $a = 1.95-2.05$ ] and 5-500 parts inorg. fillers with organic peroxides, and 0.01-10 parts (based on 100 parts I) organosilicon compds. (mol. weight  $\leq 10,000$ ) containing 5-40% alkenyl or alkynyl groups and no OH or alkoxy groups bonded to Si atoms and thermally curing the mixts. Thus, a composition containing silanol-terminated dimethylpolysiloxane rubber 100, Aerosil 50 ( $SiO_2$ ) 15, silanol-terminated dimethylsiloxane oligomer 1, 2,5-dimethyl-2,5-di(tert-butylperoxy)hexane 0.7, and tetramethyltetravinylcyclotetrasiloxane 0.11 part was cured to give a **rubber** with Ascar C **hardness** 22, tensile strength 2.5 MPa, and elongation at break 1100%.

IT 7631-86-9, Aerosil 50, uses  
 (manufacture of peroxide-vulcanized silicone **rubbers** with  
 controlled **hardness**)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

$O=Si=O$

IT 324020-77-1P

(rubber; manufacture of peroxide-vulcanized silicone **rubbers**  
 with controlled **hardness**)

RN 324020-77-1 HCAPLUS

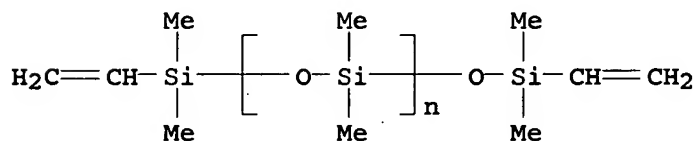
CN Cyclotetrasiloxane, 2,4,6,8-tetraethenyl-2,4,6,8-tetramethyl-, polymer with  $\alpha$ -(ethenyldimethylsilyl)- $\omega$ -[(ethenyldimethylsilyl)oxy]poly[oxy(dimethylsilylene)] and  $\alpha$ -hydro- $\omega$ -hydroxypoly[oxy(dimethylsilylene)] (9CI)  
(CA INDEX NAME)

CM 1

CRN 59942-04-0

CMF (C2 H6 O Si)<sub>n</sub> C8 H18 O Si2

CCI PMS

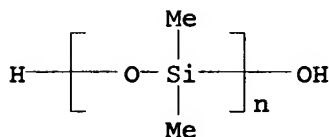


CM 2

CRN 31692-79-2

CMF (C2 H6 O Si)<sub>n</sub> H2 O

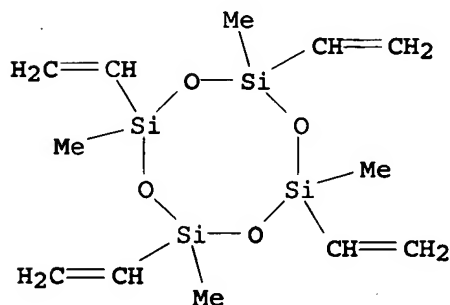
CCI PMS



CM 3

CRN 2554-06-5

CMF C12 H24 O4 Si4



IC ICM C08L083-07

ICS C08G077-18; C08G077-20; C08J003-20; C08J003-24; C08K003-00;  
C08K005-14; C08K005-5425

CC 39-10 (Synthetic Elastomers and Natural Rubber)

ST vulcanization silicone **rubber hardness**

control; methylvinylcyclotetrasiloxane vulcanizing polysiloxane  
**rubber silica**; org peroxide vulcanized  
 organopolysiloxane

IT Silicone rubber, preparation  
 (di-Me, vulcanized; manufacture of peroxide-vulcanized silicone  
**rubbers with controlled hardness**)

IT Peroxides, uses  
 (organic; manufacture of peroxide-vulcanized silicone **rubbers**  
 with controlled **hardness**)

IT 78-63-7, 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane  
 (manufacture of peroxide-vulcanized silicone **rubbers** with  
 controlled **hardness**)

IT 7631-86-9, Aerosil 50, uses  
 (manufacture of peroxide-vulcanized silicone **rubbers** with  
 controlled **hardness**)

IT 323183-72-8P 324020-77-1P  
 (rubber; manufacture of peroxide-vulcanized silicone **rubbers**  
 with controlled **hardness**)

L66 ANSWER 13 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:49309 HCAPLUS

DOCUMENT NUMBER: 130:154844

TITLE: Manufacture of heat-vulcanizable silicone  
 rubber compounds with good dispersibility

INVENTOR(S): Takahashi, Masaharu; Hagiwara, Hiroshi;  
 Igarashi, Minoru; Shibata, Keiji

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

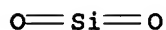
| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE         |
|-------------|------|----------|-----------------|--------------|
| -----       | ---- | -----    | -----           | -----        |
| JP 11012368 | A2   | 19990119 | JP 1997-187579  | 1997<br>0627 |
| JP 3259663  | B2   | 20020225 |                 |              |
| US 6001917  | A    | 19991214 | US 1998-109967  | 1998<br>0627 |

PRIORITY APPLN. INFO.: JP 1997-187579 A 1997  
 0627

AB The compds. are manufactured by feeding organopolysiloxane raw  
**rubbers** 100, reinforcing **silica** filler 5-100,  
 and processing aids 0.1-30 parts into a batch closed mixer, mixing  
 at below 150°, feeding the mixture into a kneader, and  
 kneading at 150-250°. Dimethylvinylsiloxyl-terminated di-Me  
 Me vinyl siloxane (Me<sub>2</sub>SiO 99.85 mol%, average d.p. .apprx.8000) 50,  
 Nipsil LP (SiO<sub>2</sub>) 20.5, silanol-terminated linear di-Me siloxane 2,  
 and vinyltrimethoxysilane 0.05 kg were kneaded in a Banbury mixer  
 at 105° and kneaded in a kneader at 170-190° for 1 h  
 to give .apprx.35 kg silicone rubber compound/h. The compound was  
 mixed with 2,5-dimethyl-2,5-di(tert-butylperoxy)hexane,  
 press-vulcanized, and post-cured to give a **rubber** sheet

showing hardness 53, tensile strength 83 kg/cm<sup>2</sup>, and elongation 340%.

IT 7631-86-9, Nipsil LP, properties  
(manufacture of heat-vulcanizable silicone rubber compds. with good dispersibility)  
RN 7631-86-9 HCAPLUS  
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

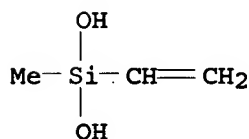


IT 220183-46-0P, Dimethylsilanediol-methylvinylsilanediol-vinyltrimethoxysilane copolymer 220183-48-2P, Dimethylsilanediol-methylsilanediol-methylvinylsilanediol-vinyltrimethoxysilane copolymer  
(rubber; manufacture of heat-vulcanizable silicone rubber compds. with good dispersibility)  
RN 220183-46-0 HCAPLUS  
CN Silanediol, dimethyl-, polymer with ethenylmethylsilanediol and ethenyltrimethoxysilane (9CI) (CA INDEX NAME)

CM 1

CRN 3959-12-4

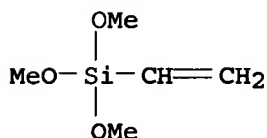
CMF C3 H8 O2 Si



CM 2

CRN 2768-02-7

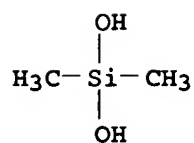
CMF C5 H12 O3 Si



CM 3

CRN 1066-42-8

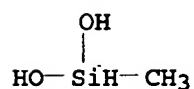
CMF C2 H8 O2 Si



RN 220183-48-2 HCAPLUS  
 CN Silanediol, dimethyl-, polymer with ethenylmethyilsilanediol,  
 ethenyltrimethoxysilane and methyilsilanediol (9CI) (CA INDEX  
 NAME)

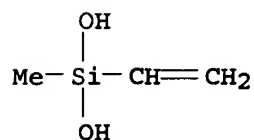
CM 1

CRN 43641-90-3  
 CMF C H6 O2 Si



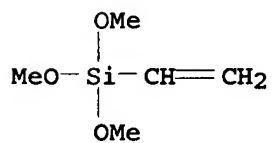
CM 2

CRN 3959-12-4  
 CMF C3 H8 O2 Si



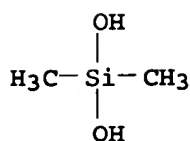
CM 3

CRN 2768-02-7  
 CMF C5 H12 O3 Si



CM 4

CRN 1066-42-8  
 CMF C2 H8 O2 Si



IC ICM C08J003-24  
ICS C08J003-20; C08K003-00; C08K003-36; C08L083-04  
CC 39-9 (Synthetic Elastomers and Natural Rubber)  
ST heat vulcanizable silicone rubber compd manuf; vinyl methyl  
siloxane rubber compd manuf; silica filler silicone  
rubber compd manuf  
IT 7631-86-9, Nipsil LP, properties  
(manufacture of heat-vulcanizable silicone rubber compds. with good  
dispersibility)  
IT 220183-46-0P, Dimethylsilanediol-methylvinylsilanediol-  
vinyltrimethoxysilane copolymer 220183-48-2P,  
Dimethylsilanediol-methylvinylsilanediol-  
vinyltrimethoxysilane copolymer  
(rubber; manufacture of heat-vulcanizable silicone rubber compds.  
with good dispersibility)

L66 ANSWER 14 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:21445 HCAPLUS

DOCUMENT NUMBER: 128:76488

TITLE: Silica-filled rubber  
composition containing two different carbon  
blacks for tire tread

INVENTOR(S): Smith, Richard Robinson; Pyle, Kevin James;  
Francik, William Paul; Sandstrom, Paul Harry

PATENT ASSIGNEE(S): Goodyear Tire and Rubber Co., USA

SOURCE: Eur. Pat. Appl., 18 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.                                                                   | KIND | DATE     | APPLICATION NO. | DATE         |
|------------------------------------------------------------------------------|------|----------|-----------------|--------------|
| EP 814124                                                                    | A2   | 19971229 | EP 1997-109651  | 1997<br>0613 |
| EP 814124                                                                    | A3   | 19980506 |                 |              |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,<br>MC, PT, IE, FI |      |          |                 |              |
| CA 2198663                                                                   | AA   | 19971222 | CA 1997-2198663 | 1997<br>0227 |
| BR 9703645                                                                   | A    | 19981110 | BR 1997-3645    | 1997<br>0620 |
| JP 10095856                                                                  | A2   | 19980414 | JP 1997-165573  | 1997<br>0623 |
| US 5780537                                                                   | A    | 19980714 | US 1997-915838  | 1997         |



PRIORITY APPLN. INFO.:

US 1996-667691

0821  
A  
1996  
0621

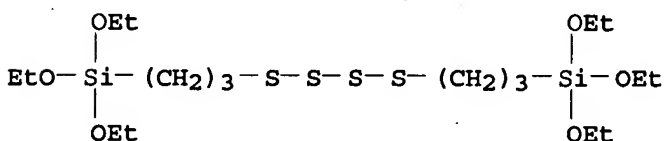
OTHER SOURCE(S): MARPAT 128:76488

AB The title rubber composition is reinforced with a combination of SiO<sub>2</sub> and a mixture of 2 C blacks (high and low reinforcing C black) for pneumatic tires. composition A rubber compound containing butadiene-isoprene rubber 70, natural rubber 30, oil 26.3, ZnO 2.5, fatty acid 3, antioxidant 3, SiO<sub>2</sub> 28, C black N299 (Iodine 108 g/kg, DBP 124 cm<sup>3</sup>/100 g) 24, C black N351 (Iodine 68 g/kg, DBP 120 cm<sup>3</sup>/100) 28, coupling agent 4.5, S 1.4, accelerator 2.6, and retarder 0.4 parts was vulcanized to give a product having Shore A hardness (23) 63, abrasion loss 118 cm<sup>3</sup>, and tan δ 0.156; vs. 63, 131, and 0.163; resp., without C black N299.

IT 40372-72-3, Bis(3-triethoxysilylpropyl)tetrasulfide  
(coupling agent; silica-filled rubber  
composition containing two different carbon blacks for tire tread with improved wear and low rolling resistance)

RN 40372-72-3 HCAPLUS

CN 3,16-Dioxa-8,9,10,11-tetrathia-4,15-disilaooctadecane,  
4,4,15,15-tetraethoxy- (9CI) (CA INDEX NAME)



IT 7631-86-9, Silica, uses  
(filler; silica-filled rubber composition containing  
two different carbon blacks for tire tread with improved wear  
and low rolling resistance)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM C08L021-00

ICS C08K003-04; B60C001-00

CC 39-13 (Synthetic Elastomers and Natural Rubber)

ST rubber tire carbon black reinforced; silica reinforced tire tread;  
hard soft carbon black rubber compn

IT Synthetic rubber, uses  
(butadiene-isoprene-styrene; silica-filled  
rubber composition containing two different carbon blacks for  
tire tread with improved wear and low rolling resistance)

IT Synthetic rubber, properties  
(butadiene-isoprene; silica-filled rubber  
composition containing two different carbon blacks for tire tread with  
improved wear and low rolling resistance)

IT Fillers  
(carbon black, mixture of high and low reinforcing;  
silica-filled rubber composition containing two  
different carbon blacks for tire tread with improved wear and

- low rolling resistance)
- IT Carbon black  
(fillers, mixture of high and low reinforcing; silica-filled rubber composition containing two different carbon blacks for tire tread with improved wear and low rolling resistance)
- IT Isoprene rubber, properties  
(of 3,4-configuration; silica-filled rubber composition containing two different carbon blacks for tire tread with improved wear and low rolling resistance)
- IT Butadiene rubber, uses  
(of cis-1,4-configuration; silica-filled rubber composition containing two different carbon blacks for tire tread with improved wear and low rolling resistance)
- IT Butadiene rubber, uses  
(of trans-1,4-configuration; silica-filled rubber composition containing two different carbon blacks for tire tread with improved wear and low rolling resistance)
- IT Tires  
(silica-filled rubber composition containing two different carbon blacks for tire tread with improved wear and low rolling resistance)
- IT Natural rubber, properties  
Styrene-butadiene rubber, properties  
(silica-filled rubber composition containing two different carbon blacks for tire tread with improved wear and low rolling resistance)
- IT ABS rubber  
Isoprene-styrene rubber  
Nitrile rubber, uses  
(silica-filled rubber composition containing two different carbon blacks for tire tread with improved wear and low rolling resistance)
- IT 9003-56-9  
(abs rubber, silica-filled rubber composition containing two different carbon blacks for tire tread with improved wear and low rolling resistance)
- IT 9003-17-2  
(butadiene rubber, of trans-1,4-configuration; silica-filled rubber composition containing two different carbon blacks for tire tread with improved wear and low rolling resistance)
- IT 40372-72-3, Bis(3-triethoxysilylpropyl)tetrasulfide  
(coupling agent; silica-filled rubber composition containing two different carbon blacks for tire tread with improved wear and low rolling resistance)
- IT 7631-86-9, Silica, uses  
(filler; silica-filled rubber composition containing two different carbon blacks for tire tread with improved wear and low rolling resistance)
- IT 9003-31-0  
(isoprene rubber, of 3,4-configuration; silica-filled rubber composition containing two different carbon blacks for tire tread with improved wear and low rolling resistance)
- IT 25038-32-8  
(isoprene-styrene rubber, silica-filled rubber composition containing two different carbon blacks for tire tread with improved wear and low rolling resistance)
- IT 9003-18-3  
(nitrile rubber, silica-filled

IT 25102-52-7, Butadiene-isoprene copolymer 26602-62-0,  
Butadiene-isoprene-styrene copolymer  
(rubber; silica-filled rubber  
composition containing two different carbon blacks for tire tread with  
improved wear and low rolling resistance)

IT 9003-55-8  
(styrene-butadiene rubber, silica-filled  
rubber composition containing two different carbon blacks for  
tire tread with improved wear and low rolling resistance)

IT 9003-17-2  
(cis-1,4-Butadiene rubber, silica-filled  
rubber composition containing two different carbon blacks for  
tire tread with improved wear and low rolling resistance)

L66 ANSWER 15 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1995:360939 HCAPLUS  
DOCUMENT NUMBER: 122:174391  
TITLE: Silicone rubber blend electrostatographic  
developer toner and image formation using it  
INVENTOR(S): Yano, Toshuki; Eguchi, Atsuhiko; Suzuki,  
Chiaki  
PATENT ASSIGNEE(S): Fuji Xerox Co Ltd, Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE         |
|------------------------|------|----------|-----------------|--------------|
| JP 06337543            | A2   | 19941206 | JP 1993-146678  | 1993<br>0527 |
| PRIORITY APPLN. INFO.: |      |          | JP 1993-146678  | 1993<br>0527 |

AB The toner is obtained by mixing toner particles containing a binder resin and a coloring agent with  $\geq 1$  kind of oxide particles, with average particle size 5-100 nm, selected from SiO<sub>2</sub>, TiO<sub>2</sub>, and Al<sub>2</sub>O<sub>3</sub> and spherical silicone rubber particles with rubber hardness 10-70 ( $1/2x \geq y$ ; x, y = average particle size of toner and silicone rubber, resp.). Images are formed through latent images on an organic surface layer of a support, developing with the toner, transferring the toner images, and removing the residual toner. The toner showed good repeating durability.

IT 7631-86-9, Silica, uses  
(electrostatog. developer toner containing silicone rubber  
and silica, titania, and/or alumina)

RN 7631-86-9 HCAPLUS

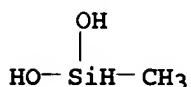
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 161527-56-6P 161527-57-7P  
 (rubber; electrostatog. developer toner containing silicone  
 rubber and silica, titania, and/or alumina)  
 RN 161527-56-6 HCAPLUS  
 CN Silanediol, ethenylmethyl-, polymer with methylsilanediol, graft  
 (9CI) (CA INDEX NAME)

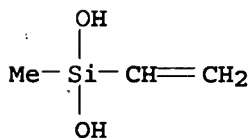
CM 1

CRN 43641-90-3  
 CMF C H6 O2 Si



CM 2

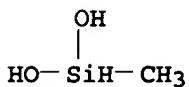
CRN 3959-12-4  
 CMF C3 H8 O2 Si



RN 161527-57-7 HCAPLUS  
 CN Silanediol, ethenylethyl-, polymer with methylsilanediol, graft  
 (9CI) (CA INDEX NAME)

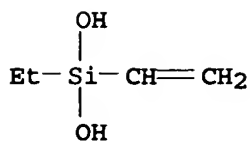
CM 1

CRN 43641-90-3  
 CMF C H6 O2 Si



CM 2

CRN 18243-24-8  
 CMF C4 H10 O2 Si



IC ICM G03G009-08  
ICS G03G015-08  
CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
IT Rubber, silicone, uses  
(KMP 594; electrostatog. developer toner containing silicone rubber and silica, titania, and/or alumina)  
IT Carbon black, uses  
(Regal 330, coloring agent; electrostatog. developer toner containing silicone rubber and silica, titania, and/or alumina)  
IT Electrophotographic developers  
(toners, electrostatog. developer toner containing silicone rubber and silica, titania, and/or alumina)  
IT 25767-47-9, Butyl acrylate-styrene copolymer  
(binder; electrostatog. developer toner containing silicone rubber and silica, titania, and/or alumina)  
IT 1344-28-1, Alumina, uses 7631-86-9, Silica, uses  
13463-67-7, Titania, uses  
(electrostatog. developer toner containing silicone rubber and silica, titania, and/or alumina)  
IT 161527-56-6P 161527-57-7P  
(rubber; electrostatog. developer toner containing silicone rubber and silica, titania, and/or alumina)

L66 ANSWER 16 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 1995:248879 HCAPLUS  
DOCUMENT NUMBER: 122:190130  
TITLE: Rubber compositions for tire treads  
INVENTOR(S): Muraoka, Kyoshige; Nakada, Yoko; Kikuchi, Naohiko; Tsumori, Isamu  
PATENT ASSIGNEE(S): Sumitomo Rubber Industries Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE         |
|------------------------|------|----------|-----------------|--------------|
| JP 06240052            | A2   | 19940830 | JP 1993-25274   | 1993<br>0215 |
| PRIORITY APPLN. INFO.: |      |          |                 | 1993<br>0215 |

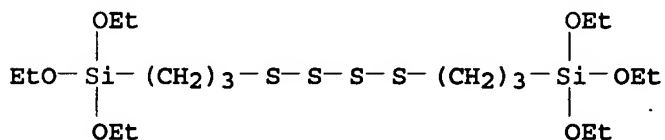
OTHER SOURCE(S): MARPAT 122:190130  
AB Title compns., useful for studless tires, with good gripping property on icy roads and tanδ peak temperature

≤-45° contain diene rubbers comprising natural rubbers and/or polybutadiene rubbers 100, SiO<sub>2</sub> 30-130, and softeners 0-15 parts. Thus, a composition comprising a natural rubber 50, a butadiene rubber 30, SBR 20, Nipsil VN3 (SiO<sub>2</sub>) 80, Si 69 6, Diana Process PS 32 (process oil) 8, stearic acid 2, ZnO 4, S 1, N-tert-butyl-2-benzothiazylsulfeneamide 0.7, and 1,3-diphenylgluanidine 1.5 parts showed tanδ peak temperature -49°, JIS A hardness 64, and good gripping property on an icy road.

IT 7631-86-9, Silica, uses  
(Nipsil VN3 (Nippon Silica Industry Co., Ltd.); tread rubber compns. containing diene-based rubbers and SiO<sub>2</sub> and softening agents for studless tires with good gripping property)  
RN 7631-86-9 HCAPLUS  
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 40372-72-3, Si 69  
(silane coupling agent; tread rubber compns. containing diene-based rubbers and SiO<sub>2</sub> and softening agents for studless tires with good gripping property)  
RN 40372-72-3 HCAPLUS  
CN 3,16-Dioxa-8,9,10,11-tetrathia-4,15-disilaooctadecane,  
4,4,15,15-tetraethoxy- (9CI) (CA INDEX NAME)



IC ICM C08L021-00  
ICS C08K003-36; C08K005-54  
ICI C08L021-00, C08L001-00  
CC 39-13 (Synthetic Elastomers and Natural Rubber)  
ST rubber blend tire tread studless; grip property diene rubber tire;  
**silica rubber blend tire hardness;**  
softener diene rubber studless tire; process oil tire skid  
resistance  
IT 7631-86-9, Silica, uses  
(Nipsil VN3 (Nippon Silica Industry Co., Ltd.); tread rubber compns. containing diene-based rubbers and SiO<sub>2</sub> and softening agents for studless tires with good gripping property)  
IT 40372-72-3, Si 69  
(silane coupling agent; tread rubber compns. containing diene-based rubbers and SiO<sub>2</sub> and softening agents for studless tires with good gripping property)

L66 ANSWER 17 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1992:573183 HCAPLUS

DOCUMENT NUMBER: 117:173183

TITLE: Processable silicone compositions and their  
vulcanized rubbers with low  
**hardness**

INVENTOR(S): Takahashi, Masaharu; Hatakeyama, Jun; Sato,

PATENT ASSIGNEE(S): Terukazu  
 SOURCE: Shin-Etsu Chemical Industry Co., Ltd., Japan  
 Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE         |
|-------------|------|----------|-----------------|--------------|
| JP 04117457 | A2   | 19920417 | JP 1990-238229  | 1990<br>0907 |
| JP 07091474 | B4   | 19951004 | JP 1990-238229  | 1990<br>0907 |

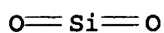
PRIORITY APPLN. INFO.:  
 1990  
0907

AB Title compns. contain (A) alkenyl-containing organopolysiloxanes with d.p.  $\geq 3000$ , (B) H- and/or alkoxy-containing organic Si compds., (C) unsatd. group-containing organopolysiloxanes with d.p. 20-500 at B/C 0.005-0.5 and (D) powdered silica having sp. surface area  $< 50$  m<sup>2</sup>/g. Thus, a mixture of Aerosil 200, silanol-terminated polydimethylsiloxane, and a raw rubber which was prepared from 1,3,5,7-tetramethylcyclotetrasiloxane, Et silicate, and vinyl-terminated polydimethylsiloxane, was heated at 150° for 2 h, treated with a H<sub>2</sub>PtCl<sub>6</sub> solution, a tetravinylcyclsiloxane, and a polydimethylmethylhydrogensiloxane, vulcanized at 170° for 10 min, and 200° for 4 h to give a test piece with compression set 3% and JIS A hardness 33.

IT 7631-86-9, Aerosil 200, uses  
 (fillers, for silicon rubber)

RN 7631-86-9 HCAPLUS

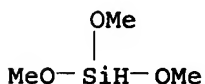
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 2487-90-3, Trimethoxysilane 11099-06-2  
 (silicon rubbers from, containing silica, with good processability and low hardness)

RN 2487-90-3 HCAPLUS

CN Silane, trimethoxy- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 11099-06-2 HCAPLUS

CN Silicic acid, ethyl ester (9CI) (CA INDEX NAME)

CM 1

CRN 1343-98-2  
 CMF Unspecified

CCI MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-17-5

CMF C2 H6 O

 $\text{H}_3\text{C}-\text{CH}_2-\text{OH}$ 

IC ICM C08L083-07

ICS C08L083-10

ICA C08G077-44; C08K003-36

CC 39-4 (Synthetic Elastomers and Natural Rubber)

ST silicone rubber low hardness

IT Rubber, silicone, preparation

(silica-containing, with good processability and low hardness)

IT 7631-86-9, Aerosil 200, uses

(fillers, for silicon rubber)

IT 2370-88-9, 1,3,5,7-Tetramethylcyclotetrasiloxane 2487-90-3

, Trimethoxysilane 11099-06-2

(silicon rubbers from, containing silica, with good processability and low hardness)

L66 ANSWER 18 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1992:237192 HCAPLUS

DOCUMENT NUMBER: 116:237192

TITLE: Compression-resistant silicone rubber composition and its use

INVENTOR(S): Nakamura, Akito; Sato, Takahiro

PATENT ASSIGNEE(S): Dow Corning Toray Silicone Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 6 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

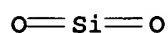
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

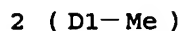
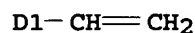
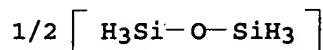
| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE              |
|------------------------|------|----------|-----------------|-------------------|
| -----                  | ---- | -----    | -----           |                   |
| EP 477984              | A1   | 19920401 | EP 1991-116601  | 1991<br>0927      |
| EP 477984              | B1   | 19950405 |                 |                   |
| R: DE, FR, GB          |      |          |                 |                   |
| JP 04139258            | A2   | 19920513 | JP 1990-262149  | 1990<br>0928      |
| JP 2522722             | B2   | 19960807 |                 |                   |
| CA 2052410             | AA   | 19920329 | CA 1991-2052410 | 1991<br>0927      |
| PRIORITY APPLN. INFO.: |      |          | JP 1990-262149  | A<br>1990<br>0928 |



- AB Title composition, useful in roll covering without needing a post cure, is prepared by mixing a polydiorganosiloxane having  $\geq 3$  alkenyl groups on the polymer chain, H-terminated polydiorganosiloxane crosslinker, and inorg. filler, and a Pt-type accelerator. A mixture of 20 parts  $\text{Me}_2\text{SiCl}_2$ -treated fumed silica and 100 parts trimethylsiloxy-terminated di-Me siloxane-Me vinyl siloxane copolymer was heat treated at  $170^\circ$  for 2 h, and then mixed with 2.6 parts  $\text{Me}_2\text{HSiO}$ -terminated di-Me polysiloxane (I), 0.06 parts monomethyltris(methylbutenoxy)silane, and chloroplatinic acid-tetramethyldivinylidisiloxane complex (responding to 10 ppm Pt) to give a silicone rubber composition showing hardness 11 JIS A and compression set 7%, compared with 19 and 16, resp., for a similar composition using 0.6 parts trimethylsiloxy-terminated di-Me siloxane-Me H siloxane copolymer instead of I.
- IT 7631-86-9D, Silica, compds.  
(fumed, fillers, for silicone rubber compns.)
- RN 7631-86-9 HCAPLUS
- CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



- IT 30110-75-9D, complex with chloroplatinic acid  
(vulcanization catalysts, for silicone rubber)
- RN 30110-75-9 HCAPLUS
- CN Disiloxane, diethenyltetramethyl- (9CI) (CA INDEX NAME)



- IC ICM C08L083-07
- CC 39-9 (Synthetic Elastomers and Natural Rubber)
- IT 75-78-5, Dimethyldichlorosilane  
(couplers for fumed silica fillers, for silicone rubber)
- IT 7631-86-9D, Silica, compds.  
(fumed, fillers, for silicone rubber compns.)
- IT 16941-12-1D, Chloroplatinic acid, complexes with tetramethyldivinylidisiloxane 30110-75-9D, complex with chloroplatinic acid  
(vulcanization catalysts, for silicone rubber)
- L66 ANSWER 19 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
- ACCESSION NUMBER: 1990:613690 HCAPLUS
- DOCUMENT NUMBER: 113:213690
- TITLE: Manufacture of improved reinforcing silica fillers for silicone

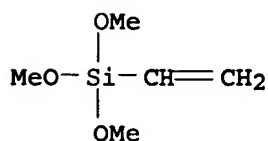
INVENTOR(S): rubbers by treatment with  
 alkoxy silanes  
 Kennan, Linda Denise; Monroe, Carl Morrison;  
 Knapp, Theodore Lawrence; Skostins, Olgerts  
 PATENT ASSIGNEE(S): Dow Corning Corp., USA  
 SOURCE: Eur. Pat. Appl., 13 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.                    | KIND | DATE     | APPLICATION NO. | DATE              |
|-------------------------------|------|----------|-----------------|-------------------|
| EP 382370                     | A1   | 19900816 | EP 1990-300676  | 1990<br>0123      |
| EP 382370                     | B1   | 19940406 |                 |                   |
| R: BE, DE, ES, FR, GB, IT, NL |      |          |                 |                   |
| US 5008305                    | A    | 19910416 | US 1989-306193  | 1989<br>0206      |
| CA 2008221                    | AA   | 19900806 | CA 1990-2008221 | 1990<br>0122      |
| ES 2055313                    | T3   | 19940816 | ES 1990-300676  | 1990<br>0123      |
| AU 9049103                    | A1   | 19900809 | AU 1990-49103   | 1990<br>0205      |
| AU 622270                     | B2   | 19920402 |                 |                   |
| JP 02283764                   | A2   | 19901121 | JP 1990-24561   | 1990<br>0205      |
| JP 2892741                    | B2   | 19990517 |                 |                   |
| PRIORITY APPLN. INFO.:        |      |          | US 1989-306193  | A<br>1989<br>0206 |

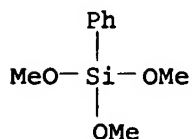
AB An improved reinforcing silica (I) filler, having a surface area >50 m<sup>2</sup>/g and 0.5-6 weight parts adsorbed moisture/100 parts I, is produced by treatment with a volatile treating agent comprising a combination of 0.2-10 weight parts of treating agent having the formula VixSi(OR)<sub>4-x</sub> and 0.2-15 weight parts treating agent having the formula PhxSi(OR)<sub>5</sub><sub>3-x</sub> (Vi = vinyl radical). The improved I filler can be used for reinforcing silicone rubber compns. without the use of expensive additives. Thus, 100 parts I (surface area 250 m<sup>2</sup>/g) was mixed with vinyl trimethoxysilane (II) 2, PhSi(MeO)<sub>3</sub> 4, and hexamethyldisilazane (III) 0.1 part for 45 min. to give a treated filler. The treated filler was then mixed with dimethylvinylsiloxy-terminated poly(dimethylsiloxane), dimethylvinylsiloxy-terminated poly(diorganosiloxane), and OH-terminated poly(dimethylsiloxane) fluid, worked up, compounded with 2,5-bis(tert-butylperoxy)-2,5-dimethylhexane, then molded and cured at 171°, post-cured at 200°, and aged at 225° for 70 h to give silicone rubber sheets showing hardness change 0, tensile strength change -61%, and elongation change -64%, compared with 6, -62, and -85, resp.,

for a similar silicone rubber reinforced with I treated with II,  
MeSi(MeO)<sub>3</sub>, and III.

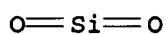
IT 2768-02-7, Vinyltrimethoxysilane 2996-92-1,  
Phenyltrimethoxysilane  
(treatment by, of silica filler, for improved  
rubber reinforcement)  
RN 2768-02-7 HCAPLUS  
CN Silane, ethenyltrimethoxy- (9CI) (CA INDEX NAME)



RN 2996-92-1 HCAPLUS  
CN Silane, trimethoxyphenyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 7631-86-9, Silica, uses and miscellaneous  
(treatment of, with phenyl- and vinylalkoxysilanes, for rubber  
reinforcement)  
RN 7631-86-9 HCAPLUS  
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM C09C001-30  
ICS C09C003-12; C08K009-06  
CC 39-9 (Synthetic Elastomers and Natural Rubber)  
ST silica filler treatment vinylalkoxysilane; phenylalkoxysilane  
treatment silica filler; silicone rubber modified  
silica filler  
IT 2768-02-7, Vinyltrimethoxysilane 2996-92-1,  
Phenyltrimethoxysilane  
(treatment by, of silica filler, for improved  
rubber reinforcement)  
IT 7631-86-9, Silica, uses and miscellaneous  
(treatment of, with phenyl- and vinylalkoxysilanes, for rubber  
reinforcement)

L66 ANSWER 20 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 1988:57678 HCAPLUS  
DOCUMENT NUMBER: 108:57678  
TITLE: Reversion-resistant cold-vulcanizable silicone  
rubber with low oil content  
INVENTOR(S): Lagarde, Robert  
PATENT ASSIGNEE(S): Rhone-Poulenc Specialites Chimiques, Fr.  
SOURCE: Fr. Demande, 25 pp.

DOCUMENT TYPE: CODEN: FRXXBL  
 LANGUAGE: Patent  
 FAMILY ACC. NUM. COUNT: French  
 1  
 PATENT INFORMATION:

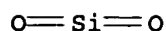
| PATENT NO.                                            | KIND | DATE     | APPLICATION NO. | DATE              |
|-------------------------------------------------------|------|----------|-----------------|-------------------|
| FR 2592656                                            | A1   | 19870710 | FR 1986-403     | 1986<br>0109      |
| FR 2592656                                            | B1   | 19880520 |                 |                   |
| JP 62230851                                           | A2   | 19871009 | JP 1987-632     | 1987<br>0107      |
| JP 05069862                                           | B4   | 19931001 |                 |                   |
| EP 235048                                             | A1   | 19870902 | EP 1987-420006  | 1987<br>0108      |
| EP 235048                                             | B1   | 19901107 |                 |                   |
| R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE |      |          |                 |                   |
| BR 8700055                                            | A    | 19871201 | BR 1987-55      | 1987<br>0108      |
| US 4782107                                            | A    | 19881101 | US 1987-1433    | 1987<br>0108      |
| CA 1269190                                            | A1   | 19900515 | CA 1987-526952  | 1987<br>0108      |
| AT 58154                                              | E    | 19901115 | AT 1987-420006  | 1987<br>0108      |
| PRIORITY APPLN. INFO.:                                |      |          | FR 1986-403     | A<br>1986<br>0109 |
|                                                       |      |          | EP 1987-420006  | A<br>1987<br>0108 |

AB The title compns., with good mech. properties and resistance to hot motor oil, contain siloxanes with viscosity <1000 Pa-s at 25° 100, reinforcing fillers 5-150, organic peroxides 0.1-7, silylalkyl (meth)acrylates 0.01-5, and alkaline earth (hydr)oxides 0.1-20 parts. A mixture of di-Me siloxane containing 0.2 mol% vinyl groups (viscosity 10 kPa-s at 25°) 100, SiO<sub>2</sub> 45, 3-(trimethoxysilyl)propyl methacrylate 0.5, 2,5-bis(tert-butylperoxy)-2,5-dimethylhexane 0.5, MgO 1, and di-Me silicone oil (viscosity 50 mPa-s) 1.6 parts was heated 10 min at 170°/30 bars to give a rubber with Shore A hardness 63, tensile strength 9.25 MPa, elongation 300%, tear strength 21 kN/m, compression set 34%, and Zwick resilience 49%, vs. 66, 9, 295, 22, 19, and 49, resp., when post-cured 4 h at 200°.

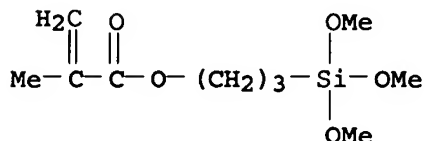
IT 7631-86-9, Silica, uses and miscellaneous  
 (fillers, for silicone rubber, reversion- and oil-resistant)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



|    |                                                                                                                |
|----|----------------------------------------------------------------------------------------------------------------|
| IT | 2530-85-0, 3-(Trimethoxysilyl)propylmethacrylate<br>(silicone rubber containing, reversion- and oil-resistant) |
| RN | 2530-85-0 HCAPLUS                                                                                              |
| CN | 2-Propenoic acid, 2-methyl-, 3-(trimethoxysilyl)propyl ester (9CI)<br>(CA INDEX NAME)                          |



IC ICM C08L083-04  
ICS C08K013-02

CC 39-10 (Synthetic Elastomers and Natural Rubber)

ST magnesium oxide silicone rubber; silylalkyl methacrylate silicone rubber; silica filler silicone rubber; reversion resistance silicone rubber; oil resistance silicone rubber

IT 7631-86-9, Silica, uses and miscellaneous  
(fillers, for silicone rubber, reversion- and oil-resistant)

IT 79-10-7D, Acrylic acid, (alkoxysilyl)alkyl esters 1305-62-0, Calcium hydroxide, uses and miscellaneous 1305-78-8, Calcium oxide, uses and miscellaneous 1309-48-4, Magnesium oxide, uses and miscellaneous 2530-85-0, 3-(Trimethoxysilyl)propylmethacrylate  
(silicone rubber containing, reversion- and oil-resistant)

L66 ANSWER 21 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1982:564365 HCAPLUS

DOCUMENT NUMBER: 97:164365

TITLE: Organosiloxane pastes curable by heat to elastomers

INVENTOR(S) : Bouverot, Noel; Medard, Paul; Viale, Alain

PATENT ASSIGNEE(S) : Rhone-Poulenc Industries S. A., Fr.

SOURCE: Fr. Demande, 17 pp.

CODEN: FRXXBL

DOCUMENT TYPE: Patent

**LANGUAGE:** French

FAMILY ACC. NUM. COUNT: 1

**PATENT INFORMATION:**

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE         |
|---------------|------|----------|-----------------|--------------|
| -----         | ---- | -----    | -----           |              |
| -----         |      |          |                 |              |
| FR 2497517    | A1   | 19820709 | FR 1981-115     | 1981<br>0107 |
| FR 2497517    | B1   | 19850809 |                 |              |
| EP 60368      | A1   | 19820922 | EP 1981-402012  | 1981<br>1216 |
| EP 60368      | B1   | 19850626 |                 |              |
| R: DE, NL, SE |      |          |                 |              |

|                        |    |             |                |              |
|------------------------|----|-------------|----------------|--------------|
| NO 8200010             | A  | 19820708    | NO 1982-10     | 1982<br>0105 |
| NO 156530              | B  | 19870629    |                |              |
| NO 156530              | C  | 19871007    |                |              |
| ES 508528              | A1 | 19831101    | ES 1982-508528 | 1982<br>0105 |
| CH 652136              | A  | 19851031    | CH 1982-34     | 1982<br>0105 |
| BE 891702              | A1 | 19820706    | BE 1982-206996 | 1982<br>0106 |
| FI 8200030             | A  | 19820708    | FI 1982-30     | 1982<br>0106 |
| FI 74035               | B  | 19870831    |                |              |
| FI 74035               | C  | 19871210    |                |              |
| GB 2091281             | A  | 19820728    | GB 1982-298    | 1982<br>0106 |
| GB 2091281             | B2 | 19840822    |                |              |
| JP 57137357            | A2 | 19820824    | JP 1982-836    | 1982<br>0106 |
| JP 60046140            | B4 | 19851014    |                |              |
| BR 8200038             | A  | 19821026    | BR 1982-38     | 1982<br>0106 |
| CA 1162677             | A1 | 19840221    | CA 1982-393667 | 1982<br>0106 |
| US 4384068             | A  | 19830517    | US 1982-337843 | 1982<br>0107 |
| PRIORITY APPLN. INFO.: |    | FR 1981-115 | A              | 1981<br>0107 |

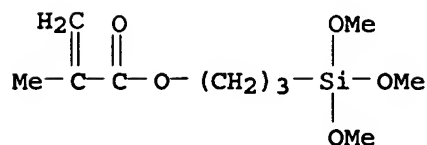
AB The title pastes, with penetration (NF T 60-132) 80-400, contain siloxanes (viscosity 500-300,000 mPa-s at 25°) 100, reinforcing SiO<sub>2</sub> (sp. surface ≥50 m<sup>2</sup>/g, 55-95% precipitated SiO<sub>2</sub> and 5-45% flame SiO<sub>2</sub>) 7-85, antiststructuring agents 1-20, and organic peroxides 0.1-4 parts. Thus, a vinyl group-containing di-Me siloxane (viscosity 105 mPa-s) 100, OH-terminated di-Me siloxane (viscosity 50 mPa-s) 4, flame SiO<sub>2</sub> (sp. surface 200 m<sup>2</sup>/g, average primary particle size 21 nm) 10, and precipitated SiO<sub>2</sub> (sp. surface 170 m<sup>2</sup>/g, average primary particle size 18 nm) 35 parts were mixed 1 h at 150°, cooled to 30°, and mixed with 1.12 parts 2,4-dichlorobenzoyl peroxide to give a paste with penetration 190. Curing this composition 8 min at 115°/50 bar and 4 h at 200°/1 atm gave a rubber with Shore A hardness 56, tensile strength 7.5 MPa, and elongation 510%.

IT 2530-85-0  
(coupler, for silica fillers for silicone rubbers pastes)

RN 2530-85-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-(trimethoxysilyl)propyl ester (9CI)

(CA INDEX NAME)



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IT 7631-86-9, uses and miscellaneous
 (filler, for thermally curable silicone rubber pastes)
RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

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IC C08L083-04; C08K003-36
CC 39-9 (Synthetic Elastomers and Natural Rubber)
ST silicone rubber paste; silica filler silicone
 rubber
IT Coupling agents
 (silanes, for silica fillers for silicone
 rubber pastes)
IT 556-67-2 2530-85-0
 (coupler, for silica fillers for silicone
 rubbers pastes)
IT 7631-86-9, uses and miscellaneous
 (filler, for thermally curable silicone rubber pastes)

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L66 ANSWER 22 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 1979:188333 HCAPLUS  
DOCUMENT NUMBER: 90:188333  
TITLE: Silicon dioxide composition treated with  
silazane  
INVENTOR(S): Elias, Janet Lesko; Maxson, Myron Timothy;  
Lee, Chi-Long  
PATENT ASSIGNEE(S): Dow Corning Corp., USA  
SOURCE: Ger. Offen., 26 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE         |
|------------------------|------|----------|-----------------|--------------|
| -----                  | ---- | -----    | -----           |              |
| DE 2838379             | A1   | 19790308 | DE 1978-2838379 | 1978<br>0902 |
| DE 2838379             | B2   | 19800626 |                 |              |
| DE 2838379             | C3   | 19810416 |                 |              |
| US 4116919             | A    | 19780926 | US 1977-830527  | 1977<br>0906 |
| PRIORITY APPLN. INFO.: |      |          | US 1977-830527  | A<br>1977    |

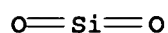
0906

AB Silica filler is treated with (Me<sub>3</sub>Si)<sub>2</sub>NH [999-97-3] and bis(1-methyl-1-silicyclopent-3-en-1-yl)amine (I) [55629-28-2] and mixed with **hardenable silicone rubber** molding compns. The mixts. have low viscosity and are suitable for molding under low pressure. Thus, 185 g silica (sp. surface 250 m<sup>2</sup>/g) is mixed with PhMe and 8.9 g water, treated with a mixture of 49.37 g (Me<sub>3</sub>Si)<sub>2</sub>NH and 5.73 g I, and dried at 150° to prepare a filler for silicone rubber.

IT 7631-86-9, uses and miscellaneous  
(fillers, silazane-treated, for silicone rubber)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 999-97-3  
(silica treated by, fillers for silicone rubber)

RN 999-97-3 HCAPLUS

CN Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)- (9CI) (CA INDEX NAME)



IC C08K003-36

CC 38-9 (Elastomers, Including Natural Rubber)

ST **silica filler silicone rubber**; silazane treatment silica filler; silacyclopentenylamine treatment silica filler; amine silacyclopentenyl silica filler

IT 7631-86-9, uses and miscellaneous  
(fillers, silazane-treated, for silicone rubber)

IT 999-97-3 55629-28-2  
(silica treated by, fillers for silicone rubber)

L66 ANSWER 23 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1976:561588 HCAPLUS

DOCUMENT NUMBER: 85:161588

TITLE: Storage-stable liquid organopolysiloxane compounds

INVENTOR(S): Gibard, Andre

PATENT ASSIGNEE(S): Rhone-Poulenc S. A., Fr.

SOURCE: Ger. Offen., 25 pp.  
CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE         |
|------------|------|----------|-----------------|--------------|
| DE 2604755 | A1   | 19760819 | DE 1976-2604755 | 1976<br>0207 |
| DE 2604755 | C3   | 19790125 |                 |              |



|             |    |          |                |              |
|-------------|----|----------|----------------|--------------|
| FR 2300114  | A1 | 19760903 | FR 1975-4046   | 1975<br>0210 |
| FR 2300114  | B1 | 19790608 |                |              |
| BE 838388   | A1 | 19760809 | BE 1976-164183 | 1976<br>0209 |
| DK 7600514  | A  | 19760811 | DK 1976-514    | 1976<br>0209 |
| DK 137684   | C  | 19780925 |                |              |
| SE 7601390  | A  | 19760811 | SE 1976-1390   | 1976<br>0209 |
| SE 426953   | B  | 19830221 |                |              |
| SE 426953   | C  | 19830602 |                |              |
| NL 7601291  | A  | 19760812 | NL 1976-1291   | 1976<br>0209 |
| NL 164314   | B  | 19800715 |                |              |
| NL 164314   | C  | 19801215 |                |              |
| BR 7600779  | A  | 19760831 | BR 1976-779    | 1976<br>0209 |
| JP 51105357 | A2 | 19760917 | JP 1976-13123  | 1976<br>0209 |
| JP 53042784 | B4 | 19781114 |                |              |
| ZA 7600718  | A  | 19770427 | ZA 1976-718    | 1976<br>0209 |
| ES 444999   | A1 | 19771101 | ES 1976-444999 | 1976<br>0209 |
| GB 1493902  | A  | 19771130 | GB 1976-4965   | 1976<br>0209 |
| US 4064096  | A  | 19771220 | US 1976-656735 | 1976<br>0209 |
| CH 609081   | A  | 19790215 | CH 1976-1535   | 1976<br>0209 |
| AU 498594   | B2 | 19790315 | AU 1976-10951  | 1976<br>0209 |
| CA 1073580  | A1 | 19800311 | CA 1976-245469 | 1976<br>0209 |
| DK 7605553  | A  | 19761210 | DK 1976-5553   | 1976<br>1210 |
| DK 139528   | C  | 19790820 |                |              |
| DK 139528   | B  | 19790305 |                |              |
| ES 458287   | A1 | 19780216 | ES 1977-458287 | 1977<br>0429 |
| JP 53137254 | A2 | 19781130 | JP 1978-32795  | 1978<br>0322 |

|                        |    |          |              |                   |
|------------------------|----|----------|--------------|-------------------|
| JP 56039816            | B4 | 19810916 |              |                   |
| SE 8000332             | A  | 19800115 | SE 1980-332  | 1980<br>0115      |
| SE 426954              | B  | 19830221 |              |                   |
| SE 426954              | C  | 19830602 |              |                   |
| PRIORITY APPLN. INFO.: |    |          | FR 1975-4046 | A<br>1975<br>0210 |
|                        |    |          | DK 1976-514  | A<br>1976<br>0209 |

AB The title compns., useful in the preparation of silicone rubber, are prepared by mixing 100 parts R3Si-terminated siloxane (R = Me 40-100, Ph 0-58, vinyl 0-2%) (viscosity 400-3000 cP at 25°), 30-75 parts SiO<sub>2</sub> (sp. surface >80 m<sup>2</sup>/g), 1.5-7 parts H<sub>2</sub>O, and 4-18 parts [R1Si(Me)<sub>2</sub>]<sub>2</sub>NH or R1Si(Me)<sub>2</sub>NHR<sub>2</sub> (R1 = Me, Et, Ph, vinyl; R<sub>2</sub> = Me, Et), stripping volatiles at 70-200°/≤1 atm, and adding to 100 parts this composition 45-120 parts OH-terminated dimethylsiloxane (I) viscosity 2000-60,000 cP at 25° and 25-120 parts SiO<sub>2</sub> (sp. surface <50 m<sup>2</sup>/g). Thus, mixing Me<sub>3</sub>Si[OSi(Me)<sub>2</sub>]<sub>n</sub>OSiMe<sub>3</sub> (viscosity 1000 cP) 3000, pyrolytic SiO<sub>2</sub> (sp. surface 200 m<sup>2</sup>/g, H<sub>2</sub>O content 1.5%) 1200, H<sub>2</sub>O 96, and (Me<sub>3</sub>Si)<sub>2</sub>NH [999-97-3] 240 g 6 hr at room temperature, distilling volatiles at 155°, and mixing 2 hr at 80° with I (viscosity 16,000 cP) 3000, I (viscosity 50 cP) 52, and ground quartz (particle size 5 μ, sp. surface 15 m<sup>2</sup>/g, H<sub>2</sub>O content 1%) 3000 g gives a composition with viscosity 42,000 cP, essentially unchanged after 6 months storage in sealed containers. Mixing this composition 1000, Me<sub>3</sub>Si[OSi(Me)<sub>2</sub>]<sub>n</sub>OSiMe<sub>3</sub> (viscosity 20 cP) 35, poly(Pr silicate) 7, and (C<sub>11</sub>H<sub>23</sub>CO<sub>2</sub>)<sub>2</sub>SnBu<sub>2</sub> 5 g and exposing films 4 days at 20° and 50% relative humidity gives a rubber with Shore A hardness 23, tensile strength 37 kg/cm<sup>2</sup>, elongation 350%, and tear strength 24 kg/cm.

IT 7631-86-9, uses and miscellaneous  
(fillers, for silicone rubber)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 999-97-3 16513-17-0 60743-29-5  
(in silicone rubber manufacture)

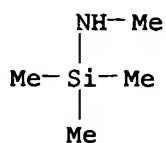
RN 999-97-3 HCAPLUS

CN Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)- (9CI) (CA INDEX NAME)

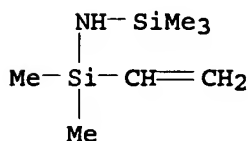
Me<sub>3</sub>Si-NH-SiMe<sub>3</sub>

RN 16513-17-0 HCAPLUS

CN Silanamine, N,1,1,1-tetramethyl- (9CI) (CA INDEX NAME)



RN 60743-29-5 HCAPLUS  
 CN Silanamine, N-(ethenyldimethylsilyl)-1,1,1-trimethyl- (9CI) (CA  
 INDEX NAME)



IC C08G077-38  
 CC 38-4 (Elastomers, Including Natural Rubber)  
 ST silicone rubber storage stability; silica filler  
 silicone rubber; quartz filler silicone rubber; silazane  
 hexamethyl silicone rubber  
 IT 7631-86-9, uses and miscellaneous 14808-60-7, uses and  
 miscellaneous  
 (fillers, for silicone rubber)  
 IT 999-97-3 16513-17-0 60743-29-5  
 (in silicone rubber manufacture)

L66 ANSWER 24 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 1976:136974 HCAPLUS  
 DOCUMENT NUMBER: 84:136974  
 TITLE: Curable diorganopolysiloxane compositions for  
 elastomers  
 PATENT ASSIGNEE(S): Elektroschmellzwerk Kempten G.m.b.H., Fed.  
 Rep. Ger.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE         |
|-------------|------|----------|-----------------|--------------|
| JP 50051554 | A2   | 19750508 | JP 1973-101591  | 1973<br>0908 |
| JP 52036538 | B4   | 19770916 | JP 1973-101591  | 1973<br>0908 |

PRIORITY APPLN. INFO.: A

AB The reaction product of silicon dioxide [7631-86-9] with  
 trimethylethoxysilane [1825-62-3] was used as a filler  
 for siloxanes. Thus, SiO<sub>2</sub> 200, Me<sub>3</sub>SiOEt 15, and water were mixed  
 in a ball mill purged with HCl for 2 hr and heated at 250°

for 2 hr to remove volatiles, and the filler (21.4 parts) was mixed with a dimethylpolysiloxane having a SiOH end group 53.7, Me<sub>3</sub>SiO-blocked dimethylpolysiloxane 21, and vinyltriacetoxysilane 3.9 parts and **hardened** to prepare an **elastomer**.

IT 7631-86-9D, Silica, reaction products with trimethylethoxysilane 100402-95-7, Silane, ethoxytrimethyl-, reaction products with silica (fillers, for silicone rubber)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

RN 100402-95-7 HCAPLUS \*\*

CN Silane, ethoxytrimethyl-, reaction products with silica (CA INDEX NAME)

CM 1

CRN 7631-86-9

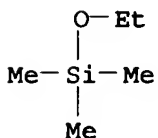
CMF 02 Si

O=Si=O

CM 2

CRN 1825-62-3

CMF C5 H14 O Si



IC C08L; C08K

CC 38-9 (Elastomers, Including Natural Rubber)

ST silicone rubber filler; silica filler silicone rubber

IT Rubber, silicone

(fillers for, silica-trimethylethoxysilane reaction products as)

IT 7631-86-9D, Silica, reaction products with trimethylethoxysilane 100402-95-7, Silane, ethoxytrimethyl-, reaction products with silica (fillers, for silicone rubber)

L66 ANSWER 25 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1976:136958 HCAPLUS

DOCUMENT NUMBER: 84:136958

TITLE: Curable organopolysiloxane compositions

INVENTOR(S): Kratel, Guenter; Stohr, Guenter; Vogt, Georg; Hechtel, Wolfgang

PATENT ASSIGNEE(S): Elektroschmelzwerk Kempten G.m.b.H., Fed. Rep. Ger.  
 SOURCE: Brit., 7 pp.  
 CODEN: BRXXAA  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE         |
|------------|------|----------|-----------------|--------------|
| -----      | ---- | -----    | -----           | -----        |
| GB 1420345 | A    | 19760107 | GB 1973-41967   | 1973<br>0906 |

PRIORITY APPLN. INFO.: GB 1973-41967 A 1973  
0906

AB Noncreep room temperature- **hardenable elastomers** were manufactured using a Me<sub>3</sub>SiOEt-modified SiO<sub>2</sub> filler prepared by ball-milling pyrogenic SiO<sub>2</sub> with Me<sub>3</sub>SiOEt. Thus, 200 g SiO<sub>2</sub> surface area 200 m<sup>2</sup>/g bulk d. 65 g/l. were mixed with 15 g Me<sub>3</sub>SiOEt and 2 g H<sub>2</sub>O in a mill containing 1.5 l. 15-40 mm diameter porcelain balls. After milling 2 hr under HCl(g) and heating 2 hr at 250° to remove volatiles filler bulk d. 280 g/l. was obtained. A composition of OH group-containing dimethylpolysiloxane 128.0, Me<sub>3</sub>Si-end blocked dimethylpolysiloxane 56.0, filler 44.0, CH<sub>2</sub>:CHSi(OAc)<sub>3</sub> 12.8, and dibutyltin dilaurate 6.2 g gave a soft mass which cured in 2 days in air to give an elastomer tear propagation resistance 12.8 kg/cm and elongation at break 490%.

IT 7631-86-9D, Silica, ethoxytrimethylsilane-modified  
 100402-95-7, Silane, ethoxytrimethyl-, reaction products with silica  
 (fillers, for silicone rubber, room-temperature curable compns.)

RN 7631-86-9 HCAPLUS  
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

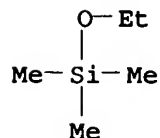
O=Si=O

RN 100402-95-7 HCAPLUS \*\*  
 CN Silane, ethoxytrimethyl-, reaction products with silica (CA INDEX NAME)  
 CM 1  
 CRN 7631-86-9  
 CMF O2 Si

O=Si=O

CM 2  
 CRN 1825-62-3

CMF C5 H14 O Si



IC C08L; C09C  
 CC 38-4 (Elastomers, Including Natural Rubber)  
 ST silicone rubber silica filler; silane treatment silica filler  
 IT 7631-86-9D, Silica, ethoxytrimethylsilane-modified  
 100402-95-7, Silane, ethoxytrimethyl-, reaction products with silica  
 (fillers, for silicone rubber, room-temperature curable compns.)

L66 ANSWER 26 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1975:580801 HCAPLUS

DOCUMENT NUMBER: 83:180801

TITLE: Hardenable materials producing elastomers, based on poly(diorganosiloxanes)

PATENT ASSIGNEE(S): Elektroschmelzwerk Kempten G.m.b.H., Fed. Rep. Ger.

SOURCE: Fr. Demande, 16 pp.

CODEN: FRXXBL

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE         |
|------------|------|----------|-----------------|--------------|
| FR 2243220 | A1   | 19750404 | FR 1973-32337   | 1973<br>0907 |

PRIORITY APPLN. INFO.: FR 1973-32337 A

1973  
0907

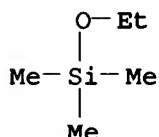
AB Finely divided SiO<sub>2</sub> [7631-86-9] was milled with a silane in the presence of water to give a filler with hydrophobic surface groups which was compounded with poly(dimethylsiloxane) and vulcanizing agents to give silicone rubbers with improved tensile strength and elongation. Thus, 200 g SiO<sub>2</sub>, specific surface area 200 m<sup>2</sup>/g and bulk d. 65 g/l. was milled 2 hr at 70 rpm with 15 g Me<sub>3</sub>SiOEt (I) [1825-62-3] and 2 g H<sub>2</sub>O and the product was heated 2 hr at 250° to remove volatiles and give a filler of bulk d. 280 g/l. A compounded mixture of an OH-terminated poly(dimethylsiloxane) 128.0, an Me<sub>3</sub>Si-terminated poly(dimethylsiloxane) 56.0, the treated SiO<sub>2</sub> filler 32.0, vinyl triacetoxysilane 12.8, a second portion of filler 12.0, and dibutyltin dilaurate 6.2 g, which did not flow or creep, was allowed to vulcanize 2 days at room temperature and the rubber obtained had tear strength 12.8 kg/cm, elongation at break 490%, and

tensile strength 28 kg/cm<sup>2</sup>. A rubber containing filler mixed, but not milled, with I had comparison values 9.1 kg/cm, 360%, and 15 kg/cm<sup>2</sup>.

IT 7631-86-9, uses and miscellaneous  
(silane-treated, hydrophobic, silicone rubber containing)  
RN 7631-86-9 HCAPLUS  
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 1825-62-3  
(silica filler treated with, for silicone rubber)  
RN 1825-62-3 HCAPLUS  
CN Silane, ethoxytrimethyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IC C08G  
CC 38-9 (Elastomers, Including Natural Rubber)  
ST silica filler silicone rubber; hydrophobic  
silica rubber filler; silane treatment silica  
filler  
IT 7631-86-9, uses and miscellaneous  
(silane-treated, hydrophobic, silicone rubber containing)  
IT 1825-62-3  
(silica filler treated with, for silicone rubber)

L66 ANSWER 27 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 1975:411893 HCAPLUS  
DOCUMENT NUMBER: 83:11893  
TITLE: Organopolysiloxane elastomers  
INVENTOR(S): Kratel, Guenter; Patzke, Joerg; Wegehaupt,  
Karl H.  
PATENT ASSIGNEE(S): Wacker-Chemie G.m.b.H., Fed. Rep. Ger.  
SOURCE: Ger. Offen., 22 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

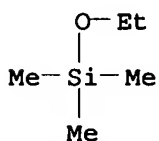
| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE         |
|------------|------|----------|-----------------|--------------|
| -----      | ---- | -----    | -----           |              |
| DE 2343846 | A1   | 19750313 | DE 1973-2343846 | 1973<br>0830 |
| DE 2343846 | B2   | 19771117 |                 |              |
| US 3929718 | A    | 19751230 | US 1974-497973  | 1974<br>0816 |
| FR 2242420 | A1   | 19750328 | FR 1974-29499   |              |

1974  
0829  
JP 50051157 A2 19750507 JP 1974-99804  
1974  
0830  
JP 52003829 B4 19770131  
GB 1473371 A 19770511 GB 1974-38061  
1974  
0830  
PRIORITY APPLN. INFO.: DE 1973-2343846 A  
1973  
0830

AB Fillers for silicone rubber which blend more rapidly and with reduced energy consumption are prepared by treating finely powdered SiO<sub>2</sub> [7631-86-9] with organosilanes under mech. stress to reduce the filler bulk d. Thus, 200 g pyrolytic SiO<sub>2</sub> (surface area 200 m<sup>2</sup>/g, bulk d. 0.065), 15 g Me<sub>3</sub>SiOEt [1825-62-3], and 2 g H<sub>2</sub>O are ball milled 2 hr under HCl and dried 2 hr at 200° to give a filler with bulk d. 0.280. A mixture of 40 g this filler, 100 g silicone rubber (vinyl content 0.1 mole %, 25° viscosity 106 cSt) and 1% Bz<sub>2</sub>O<sub>2</sub> has Mooney viscosity 20, 21, and 21 and plasticization time 0, 0, and 0 min after 1, 2, and 4 wks. storage, resp., compared with 48, 53, 55 and 2.5, 3, and 6, resp., for rubber with filler treated without ball milling (bulk d. 0.065). Vulcanization 10 min at 135° and 4 hr at 200° gives a rubber with Shore A hardness 38, resilience 56%, and tear strength 12 kg/cm, compared with 53, 45, and 11, resp., for the 2nd composition  
IT 7631-86-9, uses and miscellaneous (fillers, silane-treated, for silicone rubber)  
RN 7631-86-9 HCAPLUS  
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 1825-62-3 (silica treated by, fillers for silicone rubber)  
RN 1825-62-3 HCAPLUS  
CN Silane, ethoxytrimethyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IC C08L  
CC 38-9 (Elastomers, Including Natural Rubber)  
ST silica filler silicone rubber; silane treatment silica filler; densification silica filler  
IT Rubber, silicone (silica fillers for, silane treatment of, for improved blending)  
IT 7631-86-9, uses and miscellaneous (fillers, silane-treated, for silicone rubber)



IT 1825-62-3

(silica treated by, fillers for silicone rubber)

L66 ANSWER 28 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1974:554295 HCAPLUS

DOCUMENT NUMBER: 81:154295

TITLE: Cold-hardenable silicone  
rubber compositions

INVENTOR(S): Beers, Melvin Dale

PATENT ASSIGNEE(S): General Electric Co.

SOURCE: Ger. Offen., 53 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE              |
|------------------------|------|----------|-----------------|-------------------|
| -----                  | ---  | ----     | -----           |                   |
| DE 2358784             | A1   | 19740606 | DE 1973-2358784 | 1973<br>1126      |
| US 3847848             | A    | 19741112 | US 1972-311487  | 1972<br>1204      |
| GB 1446215             | A    | 19760818 | GB 1973-51316   | 1973<br>1105      |
| IT 1002179             | A    | 19760520 | IT 1973-32011   | 1973<br>1130      |
| FR 2208937             | A1   | 19740628 | FR 1973-43141   | 1973<br>1204      |
| FR 2208937             | B1   | 19790622 |                 |                   |
| JP 49098862            | A2   | 19740918 | JP 1973-134946  | 1973<br>1204      |
| PRIORITY APPLN. INFO.: |      |          | US 1972-311487  | A<br>1972<br>1204 |

AB Free-flowing, thixotropic compns. giving moldings with improved mech. properties which cure in the absence of H<sub>2</sub>O contain siloxanes, 25.deg. viscosity 103-107 cP, 1-15 phr trialkoxysilane or hydrolysis product, 0.1-5 phr metal salt catalyst, and 5-300 phr SiO<sub>2</sub> [7631-86-9] filler treated with 0.5-5% hydroxylamine, 2-25% cyclosiloxane, and 1-20% silylamine. Thus, 90 parts condensed SiO<sub>2</sub> and 10 parts precipitated SiO<sub>2</sub> (surface area 200 and 300 m<sup>2</sup>/g, resp.) are treated 6 hr at 145-70.deg. with hexamethyldisilazane [999-97-3] 12, hexamethylcyclotrisiloxane [541-05-9] 8, and Et<sub>2</sub>NOH [3710-84-7] 2 parts and vacuum stripped to N content <50 ppm. A mixture (100 parts) of SiOH-terminated dimethylsiloxane (viscosity 30,000 cP) 70, tert-BuO-terminated dimethylsiloxane (viscosity 3000 cP) 30, Me<sub>3</sub>Si-terminated dimethylsiloxane (viscosity 20 cP) 27, SiOH-terminated dimethylsiloxane (SiOH content 6.8%, viscosity 15 cP) 1.8, and treated SiO<sub>2</sub> 29 parts is combined with 10 parts mixture of trimethylbutyl-terminated dimethylsiloxane (viscosity 3000 cP)

3.9, propyl silicate [12680-46-5] 3.5, 2% aqueous PrOH 0.6, dibutyltin dilaurate [77-58-7] 1, treated SiO<sub>2</sub> 0.4, and pigment 0.6 part to give a composition which remains castable for 60 min and cures in 24 hr to a rubber with tensile strength 42 kg/cm<sup>2</sup>, elongation 400%, tear strength 27 kg/cm, and Shore A hardness 30, compared with 31.5, 300, 13.5, and 35, resp., with untreated SiO<sub>2</sub>.

IT 999-97-3  
 (silica treated by, for reinforcement of silicone rubber molding compns.)  
 RN 999-97-3 HCAPLUS  
 CN Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)- (9CI) (CA INDEX NAME)

Me<sub>3</sub>Si-NH-SiMe<sub>3</sub>

IT 7631-86-9, uses and miscellaneous :  
 (silicone rubber molding compns. reinforced by, surface treatment for use in)  
 RN 7631-86-9 HCAPLUS  
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 11099-06-2D, Silicic acid, ethyl ester, hydrolyzed, polymers  
 (vulcanizing agents, for silicone rubber molding compns.)  
 RN 11099-06-2 HCAPLUS  
 CN Silicic acid, ethyl ester (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 1343-98-2  
 CMF Unspecified  
 CCI MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2  
 CRN 64-17-5  
 CMF C2 H6 O

H<sub>3</sub>C-CH<sub>2</sub>-OH

IC C08G  
 CC 38-10 (Elastomers, Including Natural Rubber)  
 ST silicone rubber molding compn; vulcanization silicone rubber; silica filler silicone rubber; hydroxylamine treated silica; cyclosiloxane treated silica; silazane treated silica  
 IT 541-05-9 999-97-3 3710-84-7  
 (silica treated by, for reinforcement of silicone rubber molding compns.)  
 IT 7631-86-9, uses and miscellaneous

(silicone rubber molding compns. reinforced by, surface treatment for use in)  
 IT 11099-06-2D, Silicic acid, ethyl ester, hydrolyzed, polymers 12680-46-5  
 (vulcanizing agents, for silicone rubber molding compns.)

L66 ANSWER 29 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1969:462119 HCAPLUS

DOCUMENT NUMBER: 71:62119

TITLE: Mechanism of the antistructuring effect of alkoxysilanes in mixtures of siloxane rubbers with aerosil

AUTHOR(S): Nudel'man, Z. N.; Galil-Ogly, F. A.; Sankina, G. A.

CORPORATE SOURCE: Nauch.-Issled. Inst. Rezin. Prom., Moscow, USSR

SOURCE: Kauchuk i Rezina (1969), 28(6), 4-6

CODEN: KCRZAE; ISSN: 0022-9466

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The addition of methyltrimethoxysilane (I), dimethyl-dimethoxysilane, methylphenyldimethoxysilane, methylphenyldi-ethoxysilane, phenyltrimethoxysilane, phenyltriethoxysilane, phenyltributoxysilane, or phenyltris(octyloxy)silane to SKTV-1 (polysiloxane containing dimethyl- and divinylsiloxane groups) containing fine silica filler prevents **hardening** (structurization) of this **rubber** in storage. The antistructuring ability of the additives depends on the size of the alkoxy group; it is greatest with I. SKTV-1 containing 10 parts I could be stored  $\geq 180$  days without deterioration. There is a correlation between antistructuring ability and the hydrolytic activity of alkoxysilanes, as determined by heat evolution when they were hydrolyzed with HCl solution in EtOH. However, the results indicate that the alkoxy siloxanes are also adsorbed on silica, preventing its participation in structurization.

IT 775-56-4 780-69-8 1112-39-6

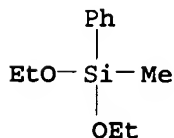
1185-55-3 2996-92-1 3027-21-2

10581-02-9 13340-44-8

(for crosslinking prevention in silica-filled silicone rubber during storage)

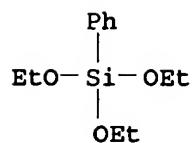
RN 775-56-4 HCAPLUS

CN Silane, diethoxymethylphenyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

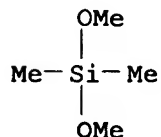


RN 780-69-8 HCAPLUS

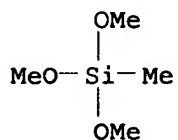
CN Silane, triethoxyphenyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



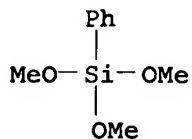
RN 1112-39-6 HCAPLUS  
CN Silane, dimethoxydimethyl- (6CI, 8CI, 9CI) (CA INDEX NAME)



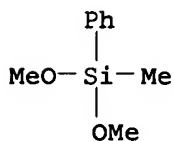
RN 1185-55-3 HCAPLUS  
CN Silane, trimethoxymethyl- (6CI, 8CI, 9CI) (CA INDEX NAME)



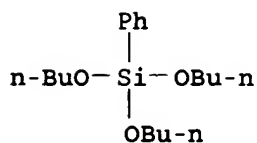
RN 2996-92-1 HCAPLUS  
CN Silane, trimethoxyphenyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 3027-21-2 HCAPLUS  
CN Silane, dimethoxymethylphenyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

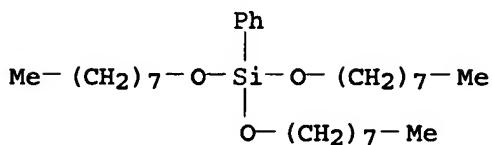


RN 10581-02-9 HCAPLUS  
CN Silane, tributoxyphenyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



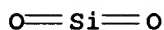
RN 13340-44-8 HCAPLUS

CN Silane, tris(octyloxy)phenyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

IT 7631-86-9, uses and miscellaneous  
(silicone rubber filled with, silane derivs. for crosslinking prevention during storage of)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



CC 38 (Elastomers, Including Natural Rubber)

IT Crosslinking

(of silica-filled silicone rubber during storage, siloxane derivs. for prevention of)

IT 775-56-4 780-69-8 1112-39-6

1185-55-3 2996-92-1 3027-21-2

10581-02-9 13340-44-8

(for crosslinking prevention in silica-filled silicone rubber during storage)

IT 7631-86-9, uses and miscellaneous

(silicone rubber filled with, silane derivs. for crosslinking prevention during storage of)

L66 ANSWER 30 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1966:491639 HCAPLUS

DOCUMENT NUMBER: 65:91639

ORIGINAL REFERENCE NO.: 65:17180a-d

TITLE: Improved organopolysiloxane elastomers

INVENTOR(S): Roch, Kenneth M.

PATENT ASSIGNEE(S): Midland Silicones Ltd.

SOURCE: 7 pp.

DOCUMENT TYPE: Patent

LANGUAGE: Unavailable

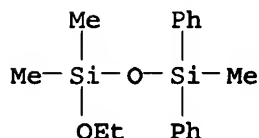
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

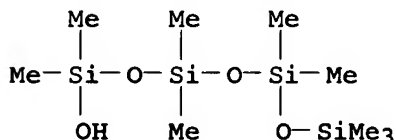
| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE |
|------------|------|----------|-----------------|------|
| GB 1041081 |      | 19660901 | GB              |      |

1962  
0823

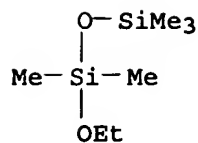
- AB The premature hardening of silica(I)-filled, vulcanizable organopolysiloxanes (II), caused by interaction between I and II, may be minimized by inclusion in the filled stock of a low mol. weight organosiloxane polymer (III), in which one terminal Si atom of the polymer chain possesses a group capable of reacting with the I surface, while the remaining terminal atom is substituted with groups which are relatively nonreactive with I. The reinforcing I is employed in the range 10-75 parts by weight per 100 parts II, and the reactive III in the range 20-100 parts by weight per 100 parts I. The elastomer produced incorporating III has improved phys. properties, especially tear resistance. Thus, 100 parts of a siloxane gum composed of phenylmethylsiloxane 13, dimethylsiloxane 86.85, and methylvinyl siloxane 0.16 weight-%, was compounded in a Baker-Perkins mixer with 40 parts I (BET surface area 300 m.2 g.-1), 20 parts pentamethylmonoethoxydisiloxane, and 1 part stannous octanoate. The system was sealed and the mixture heated under reflux for 3 hrs. and then in vacuo at 180° for a further 2 hrs., thereafter being allowed to cool. When the stock was compounded with 2,4-dichlorobenzoyl peroxide and vulcanized at 115°, the rubber had the following properties for a 5 min. cure at 115° and a 24 hr. post-cure at 250°, resp., hardness (BS°) 34, 46; tensile strength (psi.) 1520, 1275; elongation at break (%) 660, 430; tear strength (lb.), 19.5, 12.0. Samples of the unvulcanized stock were easily processable when milled after 3 months storage.
- IT 13176-68-6, Disiloxane, 1-ethoxy-1,1,3-trimethyl-3,3-diphenyl- 13176-69-7, 1-Tetrasiloxanol, nonamethyl- 13176-70-0, Disiloxane, ethoxypentamethyl- (silicone rubbers (SiO<sub>2</sub>-filled vulcanizable) premature hardening prevention by)
- RN 13176-68-6 HCAPLUS
- CN Disiloxane, 1-ethoxy-1,1,3-trimethyl-3,3-diphenyl- (7CI, 8CI) (CA INDEX NAME)



- RN 13176-69-7 HCAPLUS
- CN 1-Tetrasiloxanol, 1,1,3,3,5,5,7,7,7-nonamethyl- (9CI) (CA INDEX NAME)



- RN 13176-70-0 HCAPLUS
- CN Disiloxane, ethoxypentamethyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 7631-86-9, Silica  
 (silicone rubbers containing, premature hardening  
 of vulcanizable, prevention by siloxanes containing, SiO<sub>2</sub>-reactive  
 end-groups)  
 RN 7631-86-9 HCAPLUS  
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IC C09C  
 CC 49 (Rubber and Other Elastomers)  
 IT Silicones  
 (rubbers, silica-filled, premature  
 hardening of vulcanizable, prevention by siloxanes  
 containing SiO<sub>2</sub>-reactive end-groups)  
 IT 13176-68-6, Disiloxane, 1-ethoxy-1,1,3-trimethyl-3,3-  
 diphenyl- 13176-69-7, 1-Tetrasiloxanol, nonamethyl-  
 13176-70-0, Disiloxane, ethoxypentamethyl-  
 (silicone rubbers (SiO<sub>2</sub>-filled vulcanizable) premature  
 hardening prevention by)  
 IT 7631-86-9, Silica  
 (silicone rubbers containing, premature hardening  
 of vulcanizable, prevention by siloxanes containing, SiO<sub>2</sub>-reactive  
 end-groups)